PROSPECTIVE PAYMENT
ASSESSMENT COMMISSION

MEDICARE PROSPECTIVE PAYMENT AND THE AMERICAN HEALTH CARE SYSTEM

REPORT TO THE CONGRESS

JUNE 1988

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Donald A. Young, M.D.
Executive Director

June 1, 1988

The Honorable George Bush
President of the Senate
United States Senate
Washington, DC 20510

Dear Mr. President:

I am hereby transmitting to the Congress the report Medicare Prospective Payment and the American Health Care System. This report has been prepared by the Prospective Payment Assessment Commission as requested by the Committee on Appropriations of the House of Representatives (H.Rep.No.911, 98th Cong.,2d Sess.140 (1984)).

Sincerely,

Stuart H. Altman, Ph.D.
Chairman

Enclosure

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The Honorable Jim Wright
Speaker
U.S. House of Representatives
Washington, DC 20515

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Executive Summary

Executive Summary

As this report was written, the Medicare prospective payment system (PPS) was halfway through its fifth year. Many mid-course corrections had been instituted since implementation in fiscal year 1984, and the transition to a national system of payments was nearly complete. While information concerning the consequences of this major reform in health care financing has become more thorough, especially for the early PPS experience, many questions remain.

The Prospective Payment Assessment Commission (ProPAC) was created by Congress to provide advice on the implementation and maintenance of PPS. Congress also gave ProPAC the responsibility of reporting annually on the effects of PPS on health care in the United States. This is the third such report. It updates the previous report, published in February 1987, and contains new information based on data that have only recently become available.

The report covers the consequences of PPS for beneficiaries, hospitals and their employees, and government. It also more broadly discusses the effects of major recent changes in health care, of which PPS is a part but not necessarily a cause. Conclusions about cause and effect are drawn where the evidence will support them. In many instances, however, the information is presented descriptively because definitive conclusions are not possible. The consensus judgments of ProPAC's 17 Commissioners about system effects and tendencies are reflected below and throughout the report.

OVERVIEW

The Medicare prospective payment system, together with other changes in health care financing, has had mixed effects on health care in America. The rate of increase in Medicare inpatient hospital expenditures is down. Total inflation-adjusted Medicare expenditures, however, continue to increase at rates similar to those of the past ten years. The leveling off of inpatient expenditures is primarily due to declining admissions, which cannot be attributed to the incentives of PPS. Nevertheless, PPS did encourage reductions in length of stay and other efficiency gains during the early years of the system. Recently, however, increases in inpatient expenses per case have been significantly greater than the rate of inflation. Throughout the PPS period, there is no available information to suggest that quality of care for Medicare hospital patients has systematically declined.

Hospital financial performance under PPS has been variable—both over time and across hospitals. It is now well known that average PPS operating margins per case were unexpectedly high during the first two years of PPS but have fallen substantially since then. This recent experience is the result of hospital expenses per case rising over twice the inflation level, with Medicare payments per case rising less than inflation. This difference cannot be fully explained by hospitals treating sicker patients or by greater than expected wage increases paid to hospital employees. Because PPS severs the link between payments and an individual hospital's costs, some hospitals continue to earn substantial profits from PPS. Others are experiencing losses.

Changes in the level of PPS payments result from annual updates in PPS prices, other policy changes, and changes in hospitals' diagnosis-related group (DRG) case-mix indexes. The Commission found that for the first five years of PPS, case-mix index change led to greater payment increases than all policy decisions combined, including decisions about the update factor.

The Commission has not found evidence of substantial and systematic changes in the quality of care received by Medicare hospital patients since the implementation of PPS. Nor has there been a major reduction in the diffusion of new technology in hospitals. But the knowledge necessary to reach definitive conclusions about the quality, appropriateness, and cost-effectiveness of medical care does not exist. This is especially true in outpatient and alternative care sites, where Americans increasingly receive their health care.

Decreased inpatient hospital use has been accompanied by substantial acceleration of expenditures in outpatient, ambulatory, and alternative

care sites. This is true for the Medicare program and for the health care system as a whole. Thus, there has been a substantial shift in the way health dollars are being spent during the 1980s, without an apparent change in the overall spending trend.

Health care spending trends also affect beneficiaries' liabilities. The amount of Medicare-related out-of-pocket costs for each Medicare enrollee, adjusted for inflation, continues to increase. This increase is due to a number of factors, including the continued growth in health care expenditures. The rate of increase is slower than in the past, however. In addition, total beneficiary out-of-pocket costs, as a percent of total Medicare-related expenditures, have remained essentially unchanged.

Despite efforts of the health care industry, government, and private sector payers to contain health care spending, the growth in aggregate expenditures has not changed. The consequences of an inability to moderate the growth in health care spending are difficult to untangle, but in many significant areas, needs are going unmet. These include paying for long-term care services and health services for the millions of Americans who lack financial protection against the costs of illness.

The rest of the Executive Summary is organized in accordance with the six chapters of the report. Chapter 1 examines changes in patient care, with emphasis on services used by Medicare beneficiaries. It also includes a discussion of studies related to quality of care. Chapter 2 focuses on hospital organization, resources, and financial condition. Trends in hospital revenues, costs, and operating margins are discussed. Chapter 3 is concerned with the distribution of PPS payments to hospitals. It also examines the components of PPS payments.

Chapter 4 addresses the financial effects of changes in the health system on beneficiary out-of-pocket costs. Emphasis is placed on the effects of moving services from the inpatient to ambulatory settings. Chapter 5 more broadly discusses trends in health care expenditures and cost-containment activities. Finally, Chapter 6 examines recent changes in the health care system, including the growth of alternative financing and delivery mechanisms.

PATIENT CARE

The precipitous decline in the use of inpatient hospital services that coincided with the early years of PPS appears to be waning. Admissions were still declining in 1987, but much more slowly than in prior years, and length of stay was rising slightly. For the first time in several years, total patient days increased in 1987.

The number of Medicare beneficiaries and the proportion using health services both have increased during the PPS years. Concurrently, there has been a pronounced change in the way that health services are delivered. While the proportion of beneficiaries hospitalized has dropped, the proportion using home health, physician, and outpatient services has risen. This shift in the site of care has led the Commission and others to be concerned about the appropriateness of services received by beneficiaries in lieu of, or in addition to, inpatient hospital care.

ProPAC's analyses of the effects of PPS on the quality of and access to care for Medicare beneficiaries have not identified systematic problems. The Commission has initiated studies of potentially vulnerable beneficiary subgroups—the very old elderly, the low-income elderly, and beneficiaries with selected illnesses. The Commission expects that if inpatient quality problems occur, they should be initially detectable in the group of most vulnerable beneficiaries. Preliminary findings have not identified quality deficiencies, although there is much left to be done in this area.

The Commission's analysis of subacute care also has not produced findings to suggest a systematic deterioration of quality. The study has highlighted, however, the fact that the availability and use of post-acute care—services that provide a transition between acute care and full recovery—vary widely around the country. Post-acute care services available to beneficiaries in some parts of the country appear to be largely unavailable elsewhere. This finding requires additional attention to determine whether access to needed services is being jeopardized in some areas.

Review mechanisms set in place by Peer Review Organizations (PROs) are functioning as expected.

Since the beginning of PPS, there has been a gradual and appropriate change in PRO emphasis toward quality review. Again, however, variability is the norm. While quality screens tend to detect a relatively small aggregate proportion of cases with quality problems, the proportions vary substantially across the 54 PROs. The Commission believes that greater uniformity in PRO activities would be desirable, as would a greater emphasis on post-acute care quality review.

The Commission continues to believe that PPS should not inhibit the development and diffusion of quality-enhancing technologies. Analyses of the diffusion of such technologies as lithotripsy, magnetic resonance imaging, and expensive implantable devices do not indicate that major effects on the diffusion of technology have occurred. Nor do these analyses suggest that high-technology services are becoming more concentrated in ways that would undermine access for some beneficiaries. This evidence pertains to a period when Medicare payments were much more generous, relative to hospital costs, than at the present or in the likely future. ProPAC will continue analyses to determine if financial pressures will reduce the development or availability of new technology to Medicare beneficiaries.

HOSPITAL ORGANIZATION, RESOURCES, AND FINANCIAL CONDITION

The hospital industry's response to the incentives of PPS and other financing changes has been extremely variable over the past five years. Hospitals were forced to respond to these changes when the major shift away from inpatient hospital services was already under way. Despite this trend, hospitals initially were able to achieve substantial savings in the production of inpatient care. But after the first year of PPS, hospital costs began to rise, relative to inflation, at rates exceeding those of the pre-PPS period.

Hospital employment dropped in the early PPS period, but has risen again more recently. In addition, hospital employment mix has become more highly skilled, and part-time and contract employment in hospitals has become more prevalent. Many hospitals report shortages in skilled positions, particularly nursing. Some hospitals also report large wage increases to attract and retain skilled labor. Shortages, however, have not yet been reflected by substantial average increases in national wage and employment data bases.

Medicare continues to reimburse hospitals for capital costs on a pass-through basis, at less than full-cost reimbursement, and will do so at least until 1992. Aggregate capital costs continue to increase faster than operating costs. Capital cost increases slowed during the early PPS period but appear to be rising again.

All-patient data from the American Hospital Association (AHA) and Medicare data show similar, although not identical, trends in hospital resource use and costs. AHA data indicate that the resources used to produce individual services grew moderately, but consistently, over the PPS period. The intensity of services provided to hospitalized patients, however, has fluctuated widely. Intensity dropped in the early PPS period, but more recently has risen to levels above the pre-PPS period.

AHA data indicate that hospital revenues increased at a slightly greater pace than expenses throughout the 1970s and early 1980s. In 1984, however, revenues grew much faster than expenses. In the next three years, expenses grew more rapidly than revenues for the first time in many years. By 1987, operating revenue margins had fallen to approximately the level of the late 1970s.

Data on Medicare inpatient costs and revenues tell a similar story for the PPS years. Cost increases are frequently compared to inflation in the prices of goods and services that hospitals purchase. The per-case cost increase, which initially declined below inflation in the first year of PPS, subsequently rose to about 10 per cent per year—6 percentage points above inflation, on average. While PPS revenues per case increased substantially in the first two years, they have not kept up with costs since then. Average PPS operating margins exceeded 14 percent in the first two years, falling to 8 percent in the third year. According to ProPAC estimates, the decline has continued so that the average PPS margin is currently close to zero.

The Commission is concerned by these recent cost increases and does not completely understand

why they have occurred. It is likely that declining admissions and shortages of skilled personnel have exerted upward pressure on costs per case. A sicker patient population, as the least complex cases have been shifted to the outpatient setting, is also partially responsible. But these explanations are not sufficient to account for the magnitude of the increases in costs per case. It is possible that high earnings during the early PPS period reduced the pressure to achieve additional efficiencies, resulting in a lack of cost control in subsequent years.

Hospitals were able to attain relatively high Medicare earnings in the first two years of PPS because of efficiency gains and increases in revenues per case. Formal updates of PPS prices have never been large, but hospitals have received additional increases in payments, especially through increases in their DRG case-mix indexes. These additional sources of revenue increases have diminished with the passage of time under PPS. In a fiscal environment where payments are unlikely to rise substantially, the Commission is concerned that a continuation of the hospital cost trend will reduce revenue margins even further. This could jeopardize the financial viability of many hospitals and ultimately threaten Medicare beneficiaries' access to high-quality hospital care. The challenge is to find the appropriate balance between payment increases and cost reductions.

PPS HOSPITAL PAYMENTS

The aggregate PPS trends discussed above conceal substantial variation across hospitals. For example, the median Medicare inpatient operating margin in the third year of PPS was 5.1 percent. In this same year, the top 10 percent of hospitals had margins of 19.4 percent or greater, and the bottom 10 percent had margins of −18.5 percent or less. This variability illustrates a fundamental feature of fixed-price reimbursement based primarily on national averages: it inevitably creates winners and losers, as well as incentives to economize. The extent to which winning or losing under PPS is within the hospital's control is uncertain. This is a continuing source of concern to the Commission.

In fiscal year 1988, it is estimated that PPS will pay 5,700 hospitals for inpatient care furnished to 9.9 million Medicare beneficiaries. PPS payments and beneficiary copayments together will amount to approximately $43 billion. Under a fully phased-in system, basic payments would account for 88 percent of these dollars, indirect teaching payments for 4 percent, disproportionate share payments for 2 percent, and outlier payments for 5 to 6 percent. Even though urban and rural hospitals are approximately equal in number, the former receive about five-sixths of the payments because of their greater patient volume and the complexity of the illnesses of their patients. For similar reasons, teaching hospitals, which comprise less than 20 percent of all hospitals, receive nearly 50 percent of the payments.

The formal update in DRG prices has been a matter of substantial public debate each year since the beginning of PPS. Yet ProPAC analyses show that changes in the distribution of patients among the DRGs have been a more important source of increased payments to hospitals than the annual update factor. Payments to hospitals rise in proportion to increases in their DRG case-mix indexes. Although these case-mix index increases were substantial in the early years of PPS, they have diminished, in the aggregate, more recently.

Policy decisions affecting the payment distribution have tended to benefit hospitals with the lowest case-mix index increases. For example, rural hospitals have had less increase in payments from case-mix index change than urban hospitals. But adjustments in the payment system since the implementation of PPS, such as granting a higher update to rural hospitals in the fiscal year 1988 rates, have partially offset the effects of case-mix change on the urban-rural hospital payment distribution. Similarly, teaching hospitals have had the greatest increase in case-mix indexes. Payments to these hospitals, however, were reduced by two separate policy decisions to lower the indirect teaching adjustment since the beginning of PPS.

Variation in hospital payments and revenue margins is an expected outcome of PPS. Many of the policy decisions made since implementation have tended to counterbalance the redistributive consequences of the payment system. The Commission will continue to identify and explore variations in PPS margins among hospital groups to determine if they are caused by flaws in the payment system. To ensure that PPS treats hospitals fairly, efforts to

refine the technical base for payments must continue.

BENEFICIARY FINANCIAL EXPERIENCE UNDER MEDICARE

Medicare was not designed to cover all of beneficiaries' health care costs. Beneficiaries share financial responsibility for covered services through premiums, deductibles and coinsurance, and payments of physicians' charges in excess of Medicare's allowed amounts. Beneficiaries also incur substantial costs for services that Medicare does not cover—principally long-term care, preventive services, and prescription and nonprescription drugs outside the hospital.

Beneficiary Medicare-related out-of-pocket costs increased during the 1980s. The most significant increases were in the Part A inpatient hospital deductible, which rose from $180 in 1980 to $400 in 1985 and $540 in 1988, and the Part B premium (physician and other non-hospital services), which rose from $115 in 1980 to $186 in 1985 and $298 in 1988. Despite these increases, the beneficiary share of spending for covered services remained nearly constant from 1980 to 1987 at approximately 23 percent. During this period, the fraction of doctors' bills not paid by Medicare declined significantly.

Noncovered services are primarily paid for directly by beneficiaries, with some coverage through private insurance. Nursing home care is by far the most significant of these services, averaging between $530 and $890 per aged beneficiary in 1987. Approximately 5 percent of aged beneficiaries require nursing home and other long-term care services each year, and are therefore at risk of incurring substantial out-of-pocket costs. Moreover, this risk increases with age for the elderly population.

Catastrophic health care proposals currently debated in Congress would not help cover the costs of long-term care services. They would, however, reduce copayments for beneficiaries who require substantial acute care services and cover the costs of some other services. ProPAC will examine the effects of catastrophic coverage on beneficiary out-of-pocket payments after legislation is enacted.

Medigap insurance policies are designed to provide coverage for cost-sharing obligations built into Medicare. These policies, either purchased individually by beneficiaries or provided by former employers, cover 72 percent of aged Medicare beneficiaries; an additional 8 percent have supplemental coverage from Medicaid. Therefore, 20 percent of beneficiaries have Medicare coverage only. Premiums charged for Medigap policies, relative to other health insurance policies, are high, especially for beneficiaries who purchase such coverage individually. The risk of having large out-of-pocket costs associated with an acute episode of care, however, is substantially less for this group than for beneficiaries covered only by Medicare.

The movement of services from inpatient to ambulatory care settings has had a mixed effect on beneficiary out-of-pocket costs. In general, when services for an entire episode of acute care are shifted out of the hospital, the beneficiary tends to benefit financially. This is because the copayments under Part B of Medicare are typically less than the inpatient deductible under Part A. When some services associated with an inpatient stay are provided before and after hospitalization, however, the beneficiary tends to suffer financially because of the additional cost-sharing requirements for noninpatient services.

EXPENDITURES AND COST-CONTAINMENT ACTIVITIES

National health expenditures continue to grow faster than general inflation in the economy. As a result, the proportion of gross national product devoted to health services continues to rise. This proportion grew to 11.2 percent in 1987. Efforts to control expenditures by both private and public sector purchasers of health services have not yet reduced the overall rate of growth in health spending. Nevertheless, purchasers continue to initiate cost-containment programs, principally those that use financial incentives to control spending.

The distribution of sources of payment for health services changed during the latter part of the 1980s. The government share of total health spending declined from 40.0 percent in 1985 to 38.6 percent in 1987, mainly because of a relative reduction in payments to hospitals under the Medicare program. The proportion of total payments directly

from patients and from private insurance both went up slightly during this period.

In the five-year period spanning 1978 to 1983, Medicare spending more than doubled, from $26 billion to $58 billion. Since then, with the decline in overall inflation, there has been a slowdown in the overall growth rate and different trends for Part A and Part B of Medicare. The Part A share of total expenditures fell from 68.4 percent in 1984 to 61.5 percent in 1987. The shift of services out of the inpatient hospital setting to ambulatory care settings has contributed to the changing expenditure pattern. The shift pertains both to entire episodes of care, as in the case of lens implants performed in ambulatory surgery centers, and to portions of episodes, as in the case of post-acute services delivered after shortened hospital stays.

Several states have established programs to contain their health care costs. In 14 states, for example, Medicaid now pays for inpatient hospital care on the basis of DRGs. A few states have instituted all-payer systems for purchasing hospital services, while others have established programs for enrollment of Medicaid eligibles into health maintenance organizations (HMOs) and other capitated health plans. By the end of 1986, there were more than 800,000 Medicaid enrollees in HMOs in 25 states.

Employer-sponsored health insurance, covering over 160 million workers and family members in the United States, has changed dramatically during the 1980s. Employers have stressed increased employee cost sharing under traditional plans and increased enrollments in alternative systems—HMOs, preferred provider organizations (PPOs), and other managed care programs. HMOs and PPOs accounted for about one-fourth of employee enrollment in 1987, an impressive increase from the early 1980s. Managed care systems generally make extensive use of preadmission review, second surgical opinions, and other utilization review techniques. Despite these initiatives, the costs of private health insurance have risen in recent years, as has the proportion of incurred costs borne by employers.

CHANGES IN THE HEALTH SYSTEM

Movement toward the use of HMOs and other alternative financing systems and the shift of services from inpatient to outpatient settings both began well before the implementation of PPS. Numerous types of ambulatory facilities have developed more recently—ambulatory surgery centers, diagnostic imaging centers, and free-standing cancer centers, to name a few. The number of hospitals and units of hospitals excluded from PPS has also grown. These include psychiatric, rehabilitation, long-term, and pediatric hospitals and units.

Changes in health care delivery and financing are not confined to acute care services. In fact, it is in the area of post-acute care services that ProPAC has expressed its principal concern for potential adverse consequences of PPS and other financing changes. Trends in the use of home health, skilled nursing, and hospice services give some indication of whether the nation's health system is providing adequate services to complement shortened hospital stays. Recent declines in the use of Medicare-covered home health and skilled nursing care have raised concerns about whether beneficiaries who need post-acute care services are consistently receiving them.

Paying for long-term care services and for health care services received by the uninsured are two persistent problems that may have been exacerbated by recent changes in public and private health care financing. Relatively few public and private mechanisms exist to cover the costs of long-term care. Aging of the population and deemphasis of acute in-hospital care tend to magnify this problem.

Frequently, the uninsured turn to hospitals for both primary and acute medical care, and many hospitals are finding it difficult to fund uncompensated services. This problem is intensified by limitations on reimbursement under PPS and other payment systems. Tighter payment rates and fiercer competition have reduced the willingness and ability of hospitals and other health care providers to subsidize the costs of uncompensated care.

Approximately 35 million Americans lacked health insurance in 1985. While the uninsured use fewer services than insured persons, the costs of caring for this population are substantial. Estimates of the costs of uncompensated care vary widely—they are probably in the neighborhood of $10 billion when all types of care are considered. Much of the burden of caring for the uninsured falls on inner city public and teaching hospitals.

Chapter 1

Patient Care

Chapter 1
Patient Care

The prospective payment system (PPS) permits hospitals to retain the difference between PPS payments and the operating costs of providing inpatient services to Medicare beneficiaries. Many of the incentives for change in hospital behavior derive from this fundamental feature of the system. Hospital practices have changed since PPS began, although these changes cannot be attributed entirely to PPS incentives. The Prospective Payment Assessment Commission (ProPAC) is concerned first with identifying changes that could affect Medicare beneficiaries and second, if possible, determining whether these changes can be attributed to PPS incentives.

Substituting outpatient care for part of an inpatient stay or for an entire admission is one of the most important changes in practice patterns of the 1980s. This trend, which is partially attributable to PPS, has affected the financial status of hospitals and the mix of services patients receive. Examining the implications of this type of change for quality and availability of services is one of the Commission's highest priorities.

Various aspects of patient care are examined in this chapter. First, information on changes in the utilization of hospital and other services is described, focusing on Medicare inpatient care. The effect of PPS on new technologies is then analyzed. The chapter ends with a discussion of access and quality of care under Medicare, with special emphasis on Peer Review Organizations (PROs).

INPATIENT HOSPITAL CARE

Before the implementation of PPS, length of stay (LOS) was generally decreasing (see Table 1-1). The introduction of PPS accelerated this decline, producing a dramatic and measurable change in patient care. In the past two years, however, LOS increased slightly. Increases in LOS may indicate that the simplest cases have been moved to other settings, leaving only the sickest cases in the hospital. It could also mean that hospitals have reached the limits of their ability to substitute preadmission and post-discharge services for inpatient services.

From 1978 to 1983, total admissions increased an average 1.1 percent a year (see Table 1-2). A marked decrease in admissions occurred when PPS was introduced, although this was unexpected. Decreases in admissions slowed considerably in 1986 and 1987. The combined effect of slower declines in admissions and increases in LOS was a slight increase of 0.2 percent in inpatient days in 1987.[1]

Trends in LOS and admissions for the non-Medicare population are similar to those for the Medicare population. The decline in admissions has been less dramatic for people over 65, while

Table 1-1. Change in Length of Stay, All Adults and Adults Over Age 65, 1978–1987

Year	All Adults Length of Stay	Percent Change	Adults Over 65 Length of Stay	Percent Change
1978	7.2	-0.3%	10.6	-1.2%
1979	7.1	-1.0	10.4	-1.9
1980	7.2	0.5	10.4	-0.1
1981	7.2	0.4	10.4	-0.1
1982	7.2	-0.6	10.1	-2.3
1983	7.0	-2.0	9.7	-4.5
1984	6.7	-5.1	8.9	-7.6
1985	6.5	-2.4	8.8	-2.0
1986	6.6	1.5	8.8	0.3
1987	6.6	0.0	8.9	1.1
Average 1978–1983	7.1	-0.5	10.3	-1.7
Average 1984–1987	6.6	-1.5	8.8	-2.1

SOURCE: American Hospital Association National Panel Survey.

Table 1–2. Change in Hospital Admissions, 1978–1987 (In Percent)

Year	All Admissions	Admissions Under Age 65	Admissions Over Age 65
1978	0.4%	-1.0%	4.9%
1979	2.7	1.7	5.3
1980	2.9	1.5	6.7
1981	0.9	0.0	3.0
1982	0.0	-1.6	4.1
1983	-0.5	-2.8	4.7
1984	-3.7	-4.2	-2.6
1985	-4.9	-4.7	-5.2
1986	-2.1	-2.5	-1.2
1987	-0.6	-1.0	0.4
Average change 1978-1983	1.1	-0.4	4.8
Average change 1984-1987	-2.8	-3.1	-2.2

SOURCE: American Hospital Association National Panel Survey.

the decline in LOS has been greater. For all adults, LOS increased by 1.4 percent in 1987, and for those over 65, by 1.5 percent. Total admissions decreased 0.7 percent in 1987. Admissions of adults under 65 fell 1.0 percent, while admissions for those over 65 fell 0.2 percent.

It is not possible to examine changes in the utilization of individual tests or services associated with PPS. Available data on Medicare inpatient stays consist only of days of care and departmental charges. The data do indicate, however, that the decrease in LOS has been in routine days, while there has been a slight increase in special care days. Consequently, the proportion of total charges represented by routine days has decreased, while the proportion of charges for special care days and ancillary services has increased. Pharmacy and laboratory charges continue to represent the largest share of ancillary charges at approximately 20 percent each.

The following presents the results of studies that focus on inpatient care for Medicare beneficiaries.

Monitoring Inpatient Utilization Trends of Selected Patient Groups

The dramatic LOS decrease and other PPS-related changes may have an adverse effect on quality of care, particularly for beneficiaries who might be especially vulnerable to changes in service delivery.

ProPAC studied the inpatient utilization patterns of three beneficiary groups and compared them with all hospitalized Medicare patients. The very elderly (80 and older), patients with specific acute and chronic diseases, and some of those who are eligible for both Medicare and Medicaid (dual eligibles) were selected because they have special medical needs. Compared with all Medicare patients, the study groups' utilization patterns varied substantially. Appropriate differences in usage patterns were detectable in some instances. For example, LOS increases for some of the very old may mean that hospitals have responded to the needs of these patients. In other instances, however, the trends are difficult to interpret and need further study.

The next section describes changes in admissions, length of stay, and intended destination at discharge for the groups studied.[2] Changes in patients' intended destinations were examined because they may indicate changes in patients' resource needs at the time of discharge.

Beneficiaries 80 and Older—A greater proportion of patients with functional limitations, chronic conditions, and longer recovery periods from operations and other procedures is found in this group of beneficiaries.

The youngest patients (80 to 84 years) had a decline in admission rate between 1985 and 1986 similar to the overall Medicare population. Although total Medicare admissions decreased by nearly 2 percent, Medicare enrollment also increased over this period (see Table 1-3). Consequently, there was a 4 percent decrease in the total Medicare admission rate from fiscal year 1985 to fiscal year 1986. By contrast, admission rates increased for older patients. The oldest group (95 and older) had the largest increase of 4.5 percent.

The slight decrease in average length of stay for patients 80 or older was less than for other Medicare patients. The decrease was even smaller for older age categories. For the oldest category (age 95 or older), average LOS remained constant at 9.2

days. This compares with an average LOS of 8.2 days for all Medicare patients.

For all four age groups, hospitals reported decreases in the proportion of patients who could return home immediately upon discharge to care for themselves or be cared for by a family member. The decrease was greatest for patients 95 and older.

The difference in the rate of admission with advancing age may indicate that hospitalization is more discretionary for younger patients. It is likely that the most elderly population has more chronic conditions or comorbidities leading to hospital admission. The increase in admissions may also be due to technology advances that make it possible to treat patients more aggressively.

Selected Disease Conditions—In addition to advanced age, certain medical problems may make patients more vulnerable to changes in service delivery. ProPAC studied seven disease conditions, which were selected because they indicate more debilitated or chronically ill patients and are associated with above-average hospital resource needs. These were congestive heart failure, stroke, pneumonia, hip fracture and hip procedures, peripheral vascular disease (PVD) due to diabetes, and dementia. Dementia patients were divided into two subgroups: those who were admitted only because of this condition and those who were admitted for other conditions but who also suffered from dementia.[3]

Most of the disease groups studied had increases in admissions, in contrast to the overall decline in Medicare admissions (see Table 1-3). Slight increases occurred for patients with congestive heart failure and stroke. Admissions for pneumonia and hip fracture increased moderately. The admission trends of the two dementia groups differed. Admissions for treatment of dementia declined substantially. By contrast, admissions of patients with dementia as a secondary diagnosis remained stable.

A number of factors may explain the changes in admission rates. The small increase in admissions noted for several disease groups may be due to underlying Medicare enrollment increases. The moderate increase in admissions for hip fracture and surgery is probably related to a change in

Table 1-3. Comparison of Medicare Admissions and Length of Stay for Selected Patient Groups, Fiscal Years 1985–1986

Patient Group	1985	1986	Percent[e] Change
Total Medicare			
Admissions	9,758,400	9,593,400	-1.7%
Admissions per 1,000 enrollees	319	307	-3.7
Length of stay	8.4	8.2	-2.4
Patients Age 80 and Older			
Admissions per 1,000 enrollees			
Age 80-84	400	385	-3.8
Age 85-89	438	432	-1.5
Age 90-94	460	462	0.6
Age >=95	356	372	4.2
Length of stay			
Age 80-84	9.0	8.9	-1.6
Age 85-89	9.3	9.2	-1.0
Age 90-94	9.4	9.2	-1.5
Age >=95	9.2	9.2	-0.4
Diagnosis Groups			
Diabetic peripheral vascular disease			
Admissions	9,700	9,600	-0.7
Length of stay	16.3	15.8	-3.1
Dementia, 1[a]			
Admissions	43,200	32,800	-24.0
Length of stay	11.4	11.1	-2.6
Dementia, 2[b]			
Admissions	62,900	62,700	-0.4
Length of stay	10.0	10.0	0.1
Congestive heart failure[c]			
Admissions	81,200	82,300	1.4
Length of stay	8.2	8.1	-1.9
Stroke			
Admissions	277,800	283,200	2.0
Length of stay	11.2	10.7	-4.9
Pneumonia			
Admissions	329,200	352,200	7.0
Length of stay	9.2	9.1	-0.9
Hip fracture and hip procedures			
Admissions	127,500	134,600	5.6
Length of stay	15.0	14.5	-3.7
Medicare-Medicaid 'Buy-Ins'[d]			
Total 'buy-ins'			
Admissions per 1,000 'buy-ins'	281	268	-4.7
Categorically needy			
Admissions	590,000	561,800	-4.8
Length of stay	8.7	8.3	-3.9
Medically needy			
Admissions	172,200	174,000	1.0
Length of stay	9.5	9.5	-0.1

a Dementia, 1: patients admitted because of dementia.

b Dementia, 2: patients with dementia, admitted because of hip procedures, heart failure, stroke, or pneumonia

c A 20 percent sample was used.

d Approximately 83,000 buy-in admissions are excluded from this table due to unknown eligibility status.

e Percent changes were calculated using unrounded numbers.

SOURCES: ProPAC calculations based on MEDPAR 1985 and 1986 data; Medicare and buy-in enrollment data from the U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy; and census data from Bureau of Census, Population Division.

treatment patterns, with more frequent surgical intervention.[4] The decrease in admissions for dementia as a primary diagnosis may indicate a shift of diagnostic or therapeutic services to other sites of care. Further study is needed to better explain these reported changes in admission patterns.

Patients in most of the disease groups examined had a greater decrease in LOS than the general Medicare population. The greatest declines occurred for patients with diabetic PVD, stroke, and hip fracture. Average LOS for these patients is fairly long (11 to 16 days). While a longer LOS may be appropriate for these cases, they also represent a greater opportunity to eliminate services or shift services outside of the inpatient stay.

The percentage of patients in all the disease categories who reportedly returned home to self-care or had home health assistance declined between 1985 and 1986. These changes were greatest for patients with hip fracture and for both groups of dementia patients.

Beneficiaries Covered by Both Medicare and Medicaid—Medicare beneficiaries who are also eligible for Medicaid constituted the third study group. Their dual Medicare-Medicaid status indicates that they not only are aged or disabled, but also have a low income. A subset of the dual-eligible population, referred to as "buy ins," was studied. Buy-ins are patients for whom the state Medicaid program pays the Medicare Part B premium.

The Medicare-Medicaid group was analyzed according to type of Medicaid eligibility. The majority of this group are "categorically needy," which means they are eligible for Medicaid because they qualify for income payments from the Federal government. The remainder, the "medically needy," are eligible for Medicaid because (1) they meet a state-specific income standard, and (2) they have spent-down their income due to large medical bills. The medically needy are likely to be nursing home patients. Because state Medicaid eligibility standards differ, however, varying populations in the states qualify for Medicaid assistance.

Admission rates for patients in this dual-eligible group decreased almost 5 percent from fiscal year 1985 to 1986.[5] Trends in admission rates differ by Medicaid eligibility, however. Admissions of medically needy patients showed a 1 percent increase, whereas admissions of the categorically needy decreased nearly 5 percent. The categorically needy also experienced a substantial decline in LOS, while the LOS of the medically needy remained stable at 9.5 days (see Table 1-3).

The increase in admissions of the medically needy suggests that more nursing home patients are being admitted to hospitals, although other factors could be responsible as well. Length of stay for this group remained relatively stable, indicating they required inpatient services that would not be appropriately performed in another setting. The decrease in admissions of the categorically needy may indicate that for this group, access to hospital care has declined, hospitalization is more discretionary, or ambulatory care is an acceptable alternative. Additional study is needed to evaluate these findings.

As with the other groups studied, the number of patients reported as discharged to self-care declined from 1985 to 1986. This change was greatest for the medically needy.

Summary and Discussion—Changes in utilization among the groups studied differed substantially. Most notable were increases in admissions for patients 95 and older, several of the diagnosis groups, and those who are medically needy. Also significant were admission decreases for the categorically needy and for patients whose principal diagnosis was dementia. For all study groups, hospitals reported decreases in the proportion of patients discharged to self-care at home.

The findings raise several issues. The reasons for the observed changes in admission volume require further study. An understanding of the types and amount of services patients receive after discharge would also assist in evaluating these changes. The availability of other health services and facilities is another important consideration. Home support as a variable in determining the need for formal health services at discharge also requires examination.

ProPAC is continuing this analysis and will examine the degree to which different utilization patterns are associated with changes in mortality rates.

Subacute Care in Hospitals

In the early years of PPS, concerns were raised about whether significant declines in inpatient LOS were appropriate for all patients. An earlier discharge was regarded as desirable for those patients who received appropriate post-acute services. The patient left the acute hospital environment sooner, and savings were possible because care was provided more efficiently in the most cost-effective settings. For patients who were discharged earlier but did not receive appropriate post-acute services, however, there were concerns that quality of care problems might result.

ProPAC has determined that availability and provision of post-acute care services are critical to the effective functioning of PPS. Subacute care following acute care traditionally is neither provided by hospitals nor covered by the DRG payment. There were some indications that such care might be increasingly available in hospitals.

Therefore, the Commission decided to study subacute care delivered in acute care hospital beds, while also considering other post-acute care alternatives. Some other findings related to subacute care in alternative settings are referenced in Chapter 6.

In 1986, ProPAC began its study of hospital subacute care following acute care. As part of this study, a national survey on the provision of hospital subacute care was performed during the summer of 1987.[6] The study was designed to describe and define subacute care as well as its prevalence and distribution. A determination of cost and payment sources for this type of care and an assessment of the implications for quality of care were also part of the study. Key preliminary findings from the survey of hospitals and case studies in five states follow. Additional analyses are continuing, and final reports will be available later this year.

Definition of Subacute Care—Subacute care offered by hospitals is most appropriately defined as care provided to patients who do not meet established criteria for "medically necessary acute care." Such care may be necessary, but may not meet established criteria for payment as an acute inpatient hospitalization. Criteria used to determine medical necessity for acute care differ, however, and the application of these criteria varies significantly. For example, PROs, hospital utilization personnel, fiscal intermediaries, and researchers may use identical criteria in different ways. It may not be possible to develop accurate, reliable criteria to cover every type of situation or patient.

Volume and Use of Hospital Subacute Care—Survey results indicate that only a small portion of Medicare patients spent one or more days as an identified subacute patient, and that there is little variation in the amount of this care across states. Table 1-4 indicates that 5.2 percent of Medicare beneficiaries in non-swing bed hospitals spent at least one day as identified subacute patients.[7] The comparable figure for Medicare patients in swing bed hospitals was 6.4 percent. Generally, Medicare subacute patients have longer lengths of stay than all Medicare patients (14.0 days versus 8.9 days).

While there were wide variations in subacute lengths of stay, 80 percent of non-swing bed subacute patients were discharged in fewer than seven days (see Table 1-5). About 27 percent stayed only one day, while 5 percent stayed more than a month. Differences were significant between swing bed and non-swing bed hospitals, which would be

Table 1–4. Volume of Identified Subacute Care*

	Non-Swing Bed	Swing Bed
Discharges with at least one day identified as subacute (in percent):		
Medicare	5.2	6.4
Medicaid	1.5	0.8
All payers	2.1	3.9
Average subacute LOS (in days):		
Medicare	8.0	13.8
Medicaid	16.4	10.5
All payers	8.5	20.6
Average acute LOS for patients identified as subacute (in days):		
Medicare	14.0	9.1
Medicaid	18.8	17.4
All payers	14.0	7.8
Average acute LOS for all patients in 1985 (in days):		
Medicare	8.9	6.7
Medicaid	6.2	6.4
All payers	6.8	5.2

* U.S. data have been adjusted to account for differential response rate by hospital size.

SOURCE: Lewin/ICF analysis of American Hospital Association National Survey of Subacute Care in Hospitals, 1987.

Table 1–5. Distribution of Patients by Subacute LOS (In Percent)*

Subacute LOS	Non-Swing Bed	Swing Bed
1 day	27%	8%
2–7 days	53	40
8–14 days	10	25
15–21 days	4	12
22–28 days	2	4
29–35 days	1	3
36–70 days	2	4
71–105 days	1	2
106 or more days	1	1
Total	100	100
Number of patients	25,415	1,831

* The U.S. data have been adjusted to account for the differential response rate by bed size. 'Observation beds' are not included.

SOURCE: Lewin/ICF analysis of American Hospital Association National Survey of Subacute Care in Hospitals, 1987.

expected because the swing bed program is designed as a post-acute, transitional benefit. About 48 percent of swing bed subacute patients were discharged in less than seven days. Another 41 percent were discharged in less than a month. Only 8 percent stayed just one day, and 10 percent stayed longer than a month.

Generally, the amount of subacute care varies little across states, except for New York, which provided 21 percent of all subacute care days identified in the survey. Subacute patients in New York have extraordinarily long lengths of stay, resulting in a high number of subacute patient days. For Medicare patients, subacute LOS is three times the national average; for Medicaid patients, it is double the national average. New York accounts for 22 percent of the nation's total Medicare subacute days in hospitals. In January 1988, the state instituted new Medicaid reimbursement rules paying lower rates for hospital subacute days, comparable to nursing home rates. This change in payment policy was not in effect at the time of the survey.

Almost half of the subacute patients in non-swing bed hospitals are awaiting placement in a skilled nursing facility (SNF) or intermediate care facility (ICF), compared with 34 percent in swing bed hospitals (see Table 1-6). About 15 percent of the patients were subacute because their home environments were inadequate for recuperative needs. Subacute patients awaiting placement also have longer subacute stays, as indicated in Table 1-7. For both non-swing bed and swing bed hospitals, however, subacute lengths of stay are longest for patients requiring complex levels of care not available in nursing homes.

Cost and Payment Issues—Preliminary information suggests that Medicare may be paying for a smaller portion of the care associated with an acute spell of illness than before PPS. This phenomenon is associated with shortened hospital lengths of stays and with more limited Medicare SNF days and home health visits. Chapter 6 contains a more detailed description of recent changes in use of Medicare SNF and home health benefits.

Other payers, beneficiaries, and hospitals are paying for part of the care that Medicare might have covered earlier. Estimating the net impact of the shift to Medicaid was beyond the scope of the study. It appears, however, that in some states

Table 1–6. Distribution of Patients, by Reason for Subacute Stay (In Percent)*

Reason for Subacute Stay	Non-Swing Bed	Swing Bed
Waiting placement in SNF	30%	24%
Waiting placement in ICF	18	10
Waiting placement in nursing home, level of care unknown	1	1
Requires complex level of care unavailable in local nursing homes	6	16
Post-acute patient who chose to remain in hospital; nursing home placement not anticipated	8	14
Home environment inadequate for recuperative needs	15	19
'Hotel-type' service during outpatient treatment	2	1
Post 'same-day' surgery	1	0
'Observation-bed' patient (24 hours)	6	5
Other/do not know	13	10
Total	100	100
Number	27,023	1,930

* The U.S. data have been adjusted for account for the differential response rate by bed size.

SOURCE: Lewin/ICF analysis of American Hospital Association National Survey of Subacute Care in Hospitals, 1987.

Table 1-7. Average Subacute Length of Stay, by Reason for Subacute Care

Reason for Subacute Stay	Subacute Length of Stay		
	Total	Non-Swing Bed	Swing Bed
All reasons	8.8	8.0	18.2
Waiting placement in SNF	10.7	10.5	13.2
Waiting placement in ICF	10.3	10.1	14.1
Waiting placement in nursing home, level of care unknown	4.0	3.2	15.4
Requires complex level of care unavailable in local nursing homes	17.9	15.1	30.0
Post-acute patient who chose to remain in hospital; nursing home placement not anticipated	6.6	4.4	19.4
Home environment inadequate for recuperative needs	5.8	4.4	16.6
'Hotel-type' service during outpatient treatment	2.5	2.5	3.1
Post 'same-day' surgery	1.3	1.2	5.8
Do not know	4.9	4.2	18.1

SOURCE: Lewin/ICF analysis of American Hospital Association National Survey of Subacute Care in Hospitals, 1987.

Medicaid is paying a larger portion of the costs of acute episodes through "Administratively Necessary Day" payments and increased home care and nursing home costs.

The study findings suggest that the number of Medicare beneficiary hospital days billed to another payer increased by about 5 percent between 1981 and 1984. Some of these days are paid for by beneficiaries, some by Medicaid, and probably a few by other third parties. It is likely that beneficiaries' increased payments are primarily related to nursing home and home health services that are denied or not covered by Medicare.

Over half of hospital subacute care consists of some days for which a hospital cannot or does not bill. These cases include days related to delays in placing patients in nursing homes and days for which the hospital could have billed, but chose not to. Thus, although hospitals are absorbing some of the costs of this care, the situation probably varies from one hospital to another and may be DRG-specific.

Quality of Care Implications—The survey, case studies, and literature review have identified issues that could affect quality of care. These issues should receive careful review for policy implications.

The study documents problems with the development, application, and use of criteria for identifying when a patient is no longer medically qualified to receive acute care services. A few hospitals are applying the PROs' acute care criteria as "treatment standards" rather than as screens, thereby creating strong and possibly inappropriate incentives and pressures on physicians.

Hospital and PRO use of criteria has also increased both the utilization of observation beds and the placement of a patient in a bed without formal hospital admission. Thus, if a patient fails to meet a criterion, or there is doubt about whether a criterion is met, the patient may be observed without being admitted. Generally, Medicare Part B will reimburse for up to 24 hours of such care. While the use of observation beds appears to be a quality-enhancing movement, some hospitals may be misusing criteria as admission standards.

The survey indicated that the number of hospitals with attached nursing homes is growing in certain areas of the country. Some of these hospitals can reduce acute LOS for hip fracture patients to as little as three days, for example, without compromising quality care and patient outcomes. Despite this trend, the availability and quality of post-acute care varies significantly across regions. The more rapid transfer of patients to post-acute settings in some areas, but not in others, causes a reduction in average national LOS in some DRGs. When DRGs are recalibrated, hospitals without attached nursing homes would then be at a considerable disadvantage. Over time, this could adversely affect these hospitals and consequently the beneficiaries they serve.

The survey, analysis, and case studies strongly indicate increasing variation in the availability of and payment for subacute care. This constitutes an important policy issue with major quality of care and cost ramifications for Medicare beneficiaries and the Medicare program. Several factors contribute to this increased variation. Among them are state and regional differences in regulatory and payment environments, primarily involving the state's Medicaid program and nursing home bed

availability. Other important variables are the use and application of criteria by PROs and individual hospitals, individual hospital discharge planning and utilization review patterns, and state licensure laws. Finally, variation in fiscal intermediary practices, especially denial or coverage of SNF and home health care, plays an important role in the availability of subacute care services to Medicare beneficiaries.

Conclusions—The amount of subacute care in hospitals is small and varies little nationwide. New York hospitals provide substantially more subacute care than hospitals in any other state, possibly because of Medicaid payment policies.

The availability of post-acute care paid for separately by Medicare and Medicaid may have significant payment consequences for certain DRGs and for certain hospitals. This situation requires further review and perhaps additional policy adjustments.

There may be serious limitations on the availability of post-acute care services due to a variety of regional differences. While PPS was established as a national pricing system, its effect on beneficiaries' access to and payment for services provided for acute spells of illness is more localized. This is because the meaning of "medically necessary acute care" and, in turn, post-acute care, is being redefined at local, state, and regional levels. Therefore, the value of Medicare coverage for an acute episode of illness varies from place to place. This variation is cause for concern and further review by policymakers.

OTHER PATIENT SERVICES

A variety of factors contribute to increased utilization of non-inpatient services. Technology developments and changing medical practice patterns allow many procedures and treatments to be performed in ambulatory settings and in homes. In most cases, these settings are less costly than inpatient care; thus, all payers have an incentive to encourage the use of these alternatives as substitutes for inpatient care. These developments may, however, also result in the provision of additional services. As these services become more readily available to those who would not have used them previously, total spending will increase. Currently available data are, in most cases, not adequate to distinguish between substitution of services and new services. The growth of non-inpatient services is discussed further in Chapter 6. The rest of this section focuses on Medicare patients.

Movement of Procedures to Ambulatory Settings in the Medicare Program

ProPAC's analysis of Medicare inpatient data provides indirect evidence that services have moved from inpatient settings to ambulatory sites. The five procedures in this analysis were chosen because it was likely they had moved to ambulatory settings. As expected, the volume of these procedures done on an inpatient hospital basis declined substantially between 1984 and 1986 (see Table 1-8). A sixth procedure that for medical reasons probably would not be done on an ambulatory basis was also analyzed for comparison. Inpatient volume of this procedure was unchanged.

The analysis also examined the distribution of these procedures between inpatient and ambulatory settings in 1985. Results showed a significant percentage were done in ambulatory settings (see Table 1-9). The procedure that probably would not have been done on an outpatient basis was performed exclusively in the inpatient setting.

These findings suggest that ambulatory procedures have been substituted for procedures previously done on an inpatient basis. Available data do not indicate, however, what portion of these procedures might actually have been additional services that previously would not have been performed. Finally, whether moving services to outpatient settings affects quality of care is unknown.

Table 1-8. Change in Hospital Inpatient Utilization for Selected Procedures, 1984-1986 (In Percent)

Procedure	Volume	LOS	Age
Cataract extraction	-85%	2%	1%
Intraocular lens implantation	-82	3	1
Inguinal hernia repair	-21	-23	0
Hemorrhoidectomy	-10	-21	0
Carpal tunnel release	-58	-3	0

SOURCE: ProPAC analysis of 1985-1986 MEDPAR data.

Table 1–9. Volume and Distribution of Selected Procedures in Inpatient and Ambulatory Settings, 1985

Procedure	Total		Inpatient		Ambulatory	
	Number	Percent	Number	Percent	Number	Percent
Cataract extraction &/or intraocular lens implantation	674,000	100%	143,000	21%	531,000	79%
Hernia repair	132,000	100	116,000	88	16,000	12
Hemorrhoidectomy	56,000	100	20,000	35	36,000	65

SOURCE: ProPAC estimates based on Congressional Budget Office calculations using 1985 Part B Medicare Annual Data (B-MAD) Procedure File.

Changes in the Utilization of Medicare-Covered Services

Medicare covers several types of services that can replace or supplement inpatient hospital care. These include outpatient hospital, skilled nursing, and home health care, as well as services in numerous free-standing facilities. Some of the changing utilization patterns represent the movement of inpatient services to other sites of care because of PPS incentives and PRO review. Changing utilization patterns are also influenced by increases in the availability of alternative sites of care, the number of Medicare beneficiaries, and the proportion of beneficiaries actually using services. In addition, the greater utilization of Medicare-covered services may be partially due to changes in the Medicare benefit structure. Increases in and changing patterns of utilization have implications for beneficiary liability, Medicare program expenditures, and quality of care. These topics are discussed elsewhere in this report.

Between 1980 and 1985, the number of Medicare beneficiaries grew by 8.9 percent, while the percentage using a Medicare-covered service increased from 61 percent to 67 percent.[8] This yielded a 19.5 percent increase in the number of service users. The age distribution of beneficiaries receiving services has changed as well. In 1980, 39.3 percent of beneficiaries using any Medicare-covered service were over 75; in 1985, 41.5 percent were over 75 (see Table 1-10).

Of those beneficiaries using any Medicare service, 36 percent used inpatient services in 1980. By 1985, this usage rate dropped to 28 percent. The use of other Medicare services was also analyzed. Of those persons using any Medicare service, the percentage using skilled nursing services decreased from 2.0 percent in 1980 to 1.5 percent in 1985. For other Medicare services, the usage rates rose. Users of home health services, for example, increased from 5.1 percent in 1980 to 6.6 percent in 1985, although the number of visits per user decreased. The use of physicians and suppliers increased from 93.5 percent to 95.4 percent; outpatient hospital use increased from 46.4 percent to 49.2 percent.

The use of non-inpatient services by beneficiaries who also used inpatient services was compared with the use of non-inpatient services only (see Table 1-11). Between 1980 and 1985, the percentage of beneficiaries using non-inpatient services

Table 1–10. Age Distribution of Users of Medicare-covered Services, 1980 and 1985 (In Percent)

Age Group	1980	1985
Under 65	10.8%	9.5%
65–74	49.9	49.0
75–84	29.8	31.1
85 and Older	9.5	10.4

SOURCE: SysteMetrics under contract to ProPAC.

Table 1–11. Use of Medicare-covered Non-Inpatient Services (In Percent)

Non-inpatient Service	Did Not Use Inpatient Services		Used Inpatient Services	
	1980	1985	1980	1985
Skilled nursing	0.2%	0.2%	5.1%	5.0%
Home health	1.6	2.3	11.4	17.8
Physician/supplier	91.9	95.0	96.4	96.4
Outpatient hospital	44.3	45.1	50.1	59.8

SOURCE: SysteMetrics under contract to ProPAC.

increased for those who used non-inpatient services only. Beneficiaries with an inpatient admission also used more non-inpatient services in 1985 than they did in 1980. Furthermore, in both 1980 and 1985, beneficiaries admitted for inpatient services used a greater percentage of other services compared with those who were not admitted.

PPS AND NEW MEDICAL TECHNOLOGIES

The ability of hospitals to provide an increasing number of medical advances to a wider range of patients has depended on the development and diffusion of technology. Under PPS payment, hospitals have direct incentives to alter their use of technologies. When PPS was implemented, these incentives were predicted to lead to the adoption of technologies that decreased per-case operating costs, but increased hospital admissions for the least costly procedures within a DRG. The adoption of technologies that were highly visible and would attract patients was also expected.[9]

Evidence presented here suggests that, at least in its first three years, PPS had no major adverse impacts on the availability of new technologies. Since the implementation of PPS, important new technologies have successfully been integrated into health care delivery.

Adoption and Use of Technologies and Medical Devices

During the initial years of PPS, it does not appear that the system adversely affected the adoption of technologies by community hospitals. Table 1-12 shows the percentage of hospitals providing various high-technology services. The data cover both the pre- and post-PPS periods, and thus would indicate any changes that developed after PPS implementation in late 1983. The data do not indicate any major change in the growth of the percentage of hospitals offering these services. However, these data do not speak to the availability of these technologies to Medicare beneficiaries.

Magnetic Resonance Imaging and Lithotripsy—Magnetic resonance imaging (MRI) and shockwave lithotripsy, two important technologies introduced in the United States near the beginning of PPS, have been well studied. They serve as examples of the experience of more recently introduced technologies under PPS.

Both technologies appear to be rapidly diffusing. The number of community hospitals offering MRI increased from 912 in 1985 to 933 in 1986.[10] Of the 511 MRIs installed worldwide during 1985, 73 percent were in the United States.[11] The number of community hospitals offering lithotripsy increased from 48 in 1985 to 169 in 1986.[12] In 1986, 50 percent of lithotripters worldwide were purchased in the United States.[13]

MRI and lithotripsy facilities are increasingly located outside of the hospital.[14] According to the American College of Radiology, 73 percent of scanners were mobile or in free-standing units as of August 1987.[15] The number of mobile sites increased 250 percent from June 1986 to August 1987, with mobile scanners accounting for 27.5 percent of 1987 units. Similarly, the American

Table 1-12. Community Hospitals Providing Selected Services and Facilities, 1980-1986 (In Percent)

Year	Ultrasound	CT Scan	Megavolt Radiation Therapy	Open Heart Facility	Cardiac Catheterization Facility	Organ Transplant
1980	---	22.6%	16.3%	10.7%	16.4%	---
1981	---	24.3	16.3	10.4	15.9	---
1982	73.5%	31.3	16.7	11.1	16.7	4.0%
1983	78.8	39.3	16.5	11.4	17.1	4.3
1984	82.4	47.9	16.8	11.8	17.7	4.6
1985	85.1	55.5	17.2	12.2	18.4	4.9
1986	86.2	60.3	17.5	13.2	20.4	5.4

SOURCE: American Hospital Association, Hospital Statistics.

Hospital Association (AHA) reports that 31 percent of lithotripters are free-standing or mobile.[16]

Medical Devices—ProPAC's interest in the impact of PPS on the use of expensive devices is ongoing. An earlier study identified possible payment inequities in 1984 for patients whose care involved using expensive devices, such as prostheses and pacemakers. The follow-up analysis described here used 1984, 1985, and 1986 data to see if these payment disincentives have persisted and, most importantly, if they have reduced the use of such devices.

Included in the study were implantable or prosthetic devices costing more than $300 whose use could clearly be associated with one or more specific diagnosis-related groups (DRGs). The types of devices in the study appear in Table 1-13. A total of 29 DRGs involving 28 different medical devices were analyzed.[17] In some instances, a DRG involved two or more types of devices. For example, both ventricular shunts and bone grafts were studied within DRG 1, craniotomy cases.

Trends in device use were then examined for each of the 29 DRGs. For 24 of these DRGs, the percent of cases using devices increased between 1984 and 1986. The total number of device cases also increased for 23 of the 29 DRGs when 1985 and 1986 data were compared. Data for 1984 were not included in the comparison of numbers of cases because many hospitals were not under PPS during the entire year. Results for three DRGs are shown in Table 1-14. Because there are no standards for evaluating diffusion rates, it is impossible to determine whether these rates are appropriate.

Table 1–13. List of Devices Studied

Annuloplasty rings	Intra-aortic balloon catheters
Arteriovenous shunts	Joint prostheses
Bone grafts	Ossicular implants
Cardiac membrane oxygenators	Penile prostheses
Cardiac pacemakers	Peritoneovascular shunts
Cardiac valves	PTCA catheters
Cochlear implants	Tympanic membrane implants
Facial implants	Vascular patch grafts
Fixation rods and plates	Vena cava filters
	Ventricular shunts

The difference between average costs and simulated payments, or operating margin, for each of the 29 DRGs was calculated to determine whether the level of margin had any effect on use of devices.[18] Looking at DRGs involving both device and non-device cases and controlling for payment factors like teaching status and urban/rural location, device use for most DRGs was significantly related to lower operating margins (see examples, Table 1-15). Average operating margins were lower for device cases than for other cases in the 29 DRGs. Between 1984 and 1986, for both device and non-device cases these margins declined from 6.1 percent of the average cost in 1984 to 1.5 percent in 1986 for device cases, and from 14.4 percent to 5.2 percent for all cases.

Additional analyses showed that a hospital's 1984 operating margin had little or no effect on its subsequent use of devices in 1986.[19] In many cases, this result was not unexpected. There is little choice, for example, in deciding whether to place an arteriovenous shunt in a patient who needs dialysis. Use of other devices, such as total joint

Table 1–14. Expensive Device Use in Medicare PPS Discharges for Selected DRGs, 1984–1986

	1984 Cases in DRG Using Device		1985 Cases in DRG Using Device		1986 Cases in DRG Using Device	
Device Type (DRG Number)	Number*	Percent	Number	Percent	Number	Percent
Penile prostheses (341)	2,108	65.9%	4,629	72.9%	7,047	73.4%
Upper extremity grafts and joint prostheses (223-4)	2,039	24.7	4,469	28.6	5,614	32.0
Major joint prostheses (209)	70,404	100.0	137,170	100.0	158,068	100.0

* Because PPS was phased in during 1984 and the above figures include only PPS discharges, numbers of 1984 cases are not directly comparable to 1985 and 1986.

SOURCE: Analysis of fiscal year 1984–1986 MEDPAR data by Project HOPE Center for Health Affairs under contract to ProPAC.

Table 1–15. Estimated Operating Margins for Expensive Device Cases: 1986 Compared with 1984 and 1985, and All 1986 Cases

Device (DRG Number)	Estimated Operating Margin for 1986 Expensive Device Cases Compared with:		
	1984 Device Cases	1985 Device Cases	All 1986 Cases in DRG
Penile prostheses (341)	-$645	-$309	-$254
Upper extremity joint prostheses, bone grafts (223-4)	-194	-189	-769
Major joint protheses (209)	-579	-315	NA

SOURCE: Analysis of fiscal year 1984–1986 MEDPAR data by project HOPE Center for Health Affairs under contract to ProPAC.

prostheses and penile prostheses, however, is somewhat more discretionary; hospitals could potentially exert pressure to limit their use. Nevertheless, the numbers of cases involving joint prostheses and penile prostheses continued to increase.

Although the data suggest that PPS had no immediate, major effect on these technologies, many questions remain. By looking at adoption and use, this analysis focuses on the final stages of the technology's development. Ideally, a more sensitive indicator of PPS' impact would be to see whether the system adversely affects the research and development phases of technological advancement. Such data are considerably harder to develop because they generally are protected and not publicly available.

It will be particularly important to continue monitoring PPS' impact on technology in the future. Hospitals are expected to experience greater incentives toward cost containment as PPS margins decline, which could lead to more selective use and adoption of technologies.

Impact of New Technologies on Inpatient Hospital Costs—ProPAC studied the costs of 34 important technologies in its work on the scientific and technological advancement component of the update factor.[20] The technologies included such important new developments as liver transplantation and magnetic resonance imaging.

Overall, the results suggest that new technologies and technological advances account for only a small part of the annual increase in total Medicare expenditures for hospital operating costs. The total impact of 29 cost-increasing technologies was projected to add $302 million to Medicare inpatient expenditures in fiscal year 1989; $118 million of these expenditures probably involve the substitution of a new for an existing technology. Three developments accounted for 58 percent of the total: percutaneous transluminal coronary angioplasty (PTCA), tissue plasminogen activator (TPA), and infection control for acquired immune deficiency syndrome (AIDS).

Other evidence suggests, however, that expanded indications for using new technologies, along with changing practice patterns, may have a substantial cost impact. Two studies found large cost increases over a ten-year period for diagnoses for which more intensive treatment had become accepted.[21,22] For example, costs have risen considerably for diagnoses like acute myocardial infarction, which increasingly involve established surgical procedures. Only moderate cost changes occurred for diagnoses that did not have major treatment changes, such as uncomplicated appendicitis.

Coverage and Reimbursement Decisions—ProPAC looked at Health Care Financing Administration (HCFA) decisions to cover major new technologies as an indicator of how well the coverage decision process is working since PPS implementation. Of nine major technologies requiring approval by the Food and Drug Administration (FDA) prior to their use, HCFA explicitly approved coverage for four within one year of FDA approval (multichannel cochlear implants, implantable defibrillators, lithotripsy, and hyperthermia treatment for cancer). Two others were approved within two years of FDA approval (single channel cochlear implants and magnetic resonance imaging). The

implantable infusion pump became a covered service two and one-half years after FDA approval. FDA approved coronary angioscopy and laser angioplasty in February 1987. Both are now pending coverage decisions. Finally, no national coverage decision has been made for pulse oximetry. In the latter case, the coverage decision is made independently by each of the fiscal intermediaries and may vary by region. Coverage decisions for a number of procedures like heart transplant were also reviewed.

Overall, the Commission found that relatively few major new technologies and procedures require coverage decisions and DRG assignment each year. Thus, it should be possible to expediently evaluate each of them for coverage. In some cases, coverage decisions are being made in a timely fashion; in others, there is room for improvement. It also appears that PPS is sufficiently flexible to accommodate most new technologies and provide appropriate financial incentives where the Secretary of Health and Human Services (HHS) wishes to do so. While this has been partially accomplished through recalibration, changes in DRG assignment, and the scientific and technological advancement component of the update factor, further improvements would be desirable.

TRENDS IN CONCENTRATION OF SPECIALIZED PROCEDURES UNDER PPS

Research has indicated that many procedures are most safely and efficiently performed when they are done frequently. It was speculated that PPS would provide incentives for some hospitals to increase the numbers of certain types of cases while others would cease treating these cases. Some so-called specialized procedures have better operative outcomes when performed in high volumes. In these instances, major changes in concentration could affect both costs and quality of care.

ProPAC studied six such procedures and found that although some concentration has occurred, it is neither substantial nor systematic. The six procedures were: coronary artery bypass graft (CABG), intestinal procedures, transurethral prostatectomy (TURP), surgeries for abdominal aortic aneurysm, carotid endarterectomy, and total hip replacement. Medicare data for 1984, 1985, and 1986 were studied. The aged are known to account for a high percentage of the patients who undergo each of six study procedures in the United States. In addition, previous studies have linked surgical outcomes to hospital volumes for these procedures.

It was assumed that the relative numbers of Medicare beneficiaries undergoing these procedures at most hospitals are roughly proportional to the total number of patients. According to 1985 National Hospital Discharge Survey information, patients 65 or older comprised 39 percent of all patients undergoing CABG, 57 percent of intestinal resection patients, 78 percent of TURP patients, 69 percent of carotid endarterectomy patients, 67 percent of total hip replacement patients, and 69 percent of abdominal aortic resection patients.

The following discussion analyzes the relationship of hospital volume to mortality and procedure cost, describes which hospitals are performing the majority of procedures on Medicare beneficiaries, and examines the degree to which concentration has actually occurred under PPS. The analyses control for age, sex, DRG, number of diagnoses, number of procedures, and, where appropriate, hospital payment factors like intern-to-bed ratio and urban/rural location.

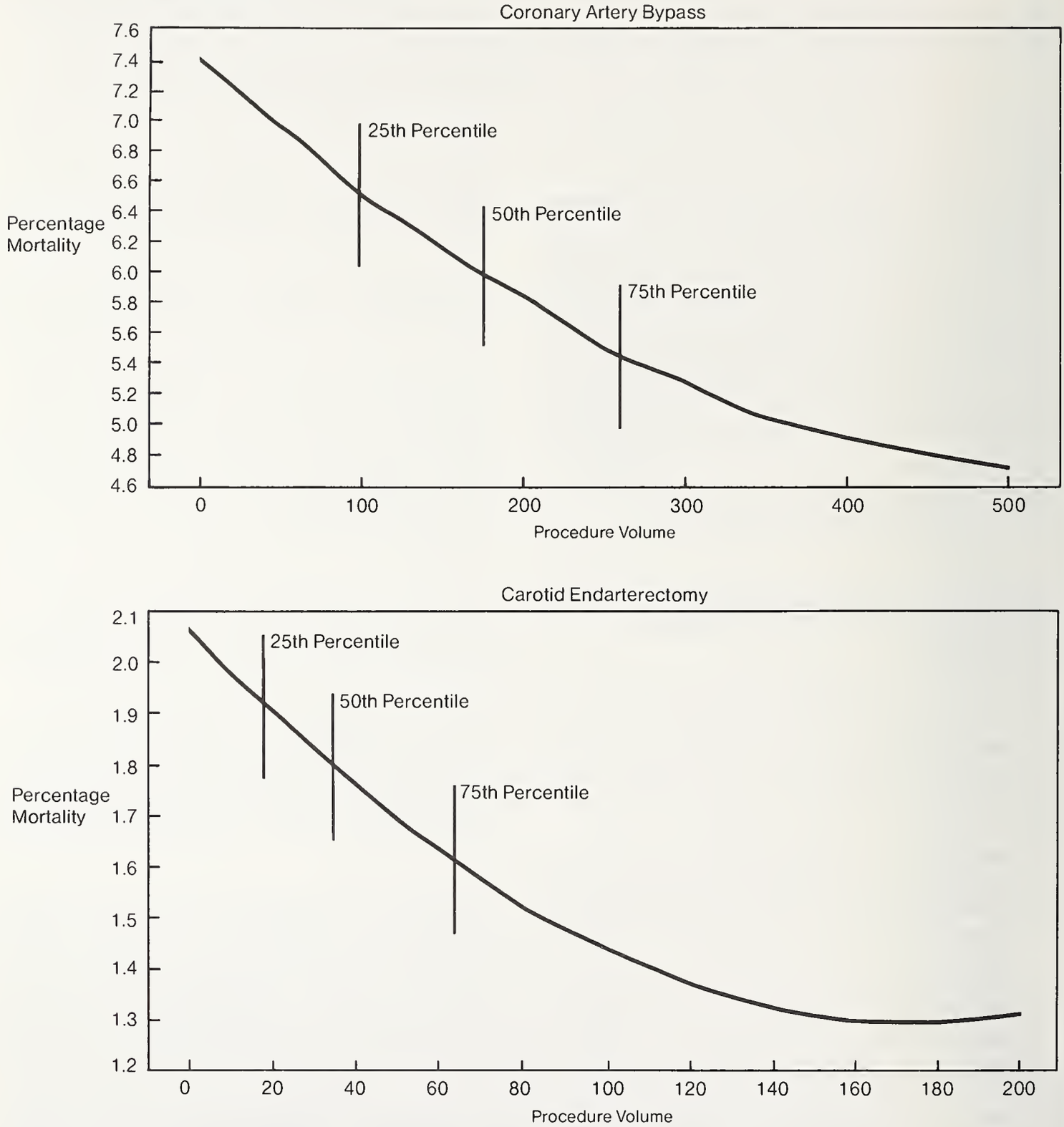
Mortality

In 1986, except for TURP, hospitals performing the greatest number of procedures experienced significantly lower mortality rates. The analysis also demonstrated that, for all six procedures, a hospital's mortality rate in 1984 bore little or no relationship to the extent of growth in volumes of these procedures. The relationship between volume of procedures performed by a hospital and mortality is illustrated in Figure 1-1 for carotid endarterectomy and CABG.

The figure also shows the distribution of Medicare beneficiaries among high- and low-volume hospitals. In 1986, 50 percent of the coronary artery bypass surgeries involving Medicare patients occurred at hospitals that performed 178 or fewer similar operations on this patient group. Similarly, 50 percent of Medicare patients underwent carotid endarterectomy at hospitals performing 36 or fewer such procedures; intestinal resection, 43 or fewer procedures; TURP, 85 or fewer procedures; total hip replacement, 40 or fewer procedures; and abdominal aortic resection, 16 or fewer procedures.

Figure 1-1. Relationship of Mortality to the Number of Procedures Performed by a Hospital

Vertical bars indicate actual 1986 experience by quartiles of Medicare beneficiaries who underwent each procedure.



SOURCE: Fiscal year 1984-1986, MEDPAR Files. Analysis by Project HOPE Center for Health Affairs

Payment Margins, Costs, and Volume

Between 1984 and 1986, hospitals with higher 1984 estimated payment margins experienced greater growth in procedure volumes.[23] For all six procedures, however, this relationship was limited.

Hospital costs appear to be significantly but not strongly related to procedure volume. The greatest decline in costs with increasing hospital volumes is for CABG. In 1986, the average cost for hospitals performing CABG on 25 or fewer Medicare patients was about $23,000, while the cost for hospitals with volumes over 100 was roughly $18,000. Costs for hospitals performing more than 500 procedures were under $15,000.

Extent of Concentration Under PPS

The total number of these procedures performed and the average Medicare volume per hospital increased from 1984 to 1986 (see Table 1-16). The greatest change was for CABG, which showed a 25 percent increase in average hospital volumes. The average volume grew between 11 and 14 percent for total hip replacement, resection of the intestine, and abdominal aortic resection. The only decrease was for carotid endarterectomy, which showed a 10 percent decline in average hospital volumes. More procedures were performed in higher-volume hospitals in 1986 than in 1984, and the number of cases treated in the lower-volume hospitals fell.

However, there was also a concomitant increase of 5 to 10 percent in the number of hospitals performing these procedures on Medicare patients. Thus, overall, there is little evidence of concentration in the sense of a consolidation or clustering of procedures in a few high-volume facilities.

These results suggest that, to a limited extent, Medicare beneficiaries are increasingly undergoing specialized procedures in higher-volume hospitals. Some of this increase, however, is due to the growth in the total numbers of Medicare beneficiaries having these surgeries. These findings suggest that additional concentration of procedures in high-volume centers would improve mortality rates for all the procedures studied except TURP. Such a shift would also be expected to lower costs substantially for CABG patients but less substantially for patients undergoing other procedures.

GEOGRAPHIC VARIATIONS IN INPATIENT TREATMENT COSTS

The cost of performing procedures varies not only with the volume of procedures performed, but also across geographic regions. Geographic variations in the use of procedures, hospitalizations, and other medical services are substantial and have been well documented. Geographic variations in utilization have not yet been satisfactorily explained by population characteristics such as age, sex, income, or underlying health status or need, or by the amount or nature of regional or local medical resources. Consequently, the wide geographic range in the costliness of care, brought about in part by practice pattern variations, is not well understood.

To assess the degree of geographic variation in total costs for selected patient groups, regional variations in total wage-adjusted operating costs for

Table 1-16. Change in Total Number of Surgeries and Average Number of Surgeries Per Hospital, 1984-1986*

Type of Surgery	Percent Change in Total Number of Procedures 1984-1986	Average Number of Procedures Per Hospital		
		1984	1986	Percent Change
CABG	35.3%	89.1	110.9	24.5%
Hip replacement	23.1	17.8	20.2	13.5
Intestinal resection	17.1	20.8	23.3	12.0
Aortic rqesection	23.4	7.7	8.6	11.7
TURP	9.7	49.7	50.8	2.2
Endarterectomy	-1.9	21.6	19.4	-10.2

* Hospitals not performing a procedure are excluded.

SOURCE: Analysis of fiscal year 1984-1986 MEDPAR data by Project HOPE Center for Health Affairs under contract to ProPAC.

three procedures or case types were examined: CABG, total hip replacement, and resection of the intestines. Using 1986 MEDPAR data, 104 potential groups were created for each case type: 52 urban regions (one urban region for each of the 50 states, the District of Columbia, and Puerto Rico) and 52 rural regions. Some of these procedures were not performed in all of the regions, so there were actually fewer than 104 regions for some case types. Regional variation for each case type was measured by computing the difference between the average costs in each urban or rural region and the average across all urban or rural regions. These differences, or cost deviations, were grouped into ranges and analyzed to determine the degree of regional variation for each case type.

The distribution of urban regions across the range of average total operating cost deviations, displayed in Table 1-17, showed considerable regional variation among CABG cases. There were as many regions around the center of the distribution (15) at +/−$500 as there were in the tails (16) at +/− $2,000. Among urban regions, the actual range of average total operating costs for CABG was from $11,450 to $24,587, with a mean cost of $16,005.

Moderate variation was noted among urban regions having intestinal resection cases. Urban regions with these cases, unlike those with CABG cases, were normally distributed. Many fewer regions were in the tails (6) than in the center of the distribution (21). Average total operating costs for intestinal resection cases among urban regions ranged from $6,666 to $13,571, with a mean cost of $9,521.

Among the three case types examined for urban regions, total hip replacement demonstrated the least amount of regional variation. No regions were in the extreme tails of the distribution; almost 50 percent (25) were near the center of the distribution. The range of average total operating costs was from $6,843 to $9,963, with a mean cost of $8,313.

A comparison of regional variation patterns among rural regions for CABG revealed trends similar to urban regions, as shown in Table 1-18. For CABG, only 21 of 52 potential regions had any cases, and only a small fraction of the total CABG cases was found in these regions. These 21 regions were unevenly distributed across the cost deviation ranges, however. There was only one region at the center, while two-thirds of the regions (14) were found in the tails of the distribution. Average total operating costs across the regions ranged from $9,350 to $33,676, with a mean cost of $16,449.

Although the distributional pattern was somewhat skewed, moderate variation was found for rural regions that had intestinal resection cases. Many fewer regions were in the tails of the distribution (3) compared with the center (21). However, average total operating costs ranged from $5,296 to $8,547, with a mean cost of $8,341.

Table 1–17. Distribution of Urban Regions Among Average Total Operating Cost Deviation Ranges for Three Case Types

	Cost Deviation Ranges							
Case Type	< -$2,000	-$2,000 to -$1,001	-$1,000 to -$501	-$500 to $0	$0 to $500	$501 to $1,000	$1,001 to $2,000	> $2,000
CABG								
Number of regions	9	6	4	5	10	4	5	7
Number of cases	7,501	11,720	4,651	3,923	21,010	6,619	7,295	8,421
Number of hospitals	60	119	33	31	196	53	57	90
Resection of intestines								
Number of regions	2	8	6	10	11	6	5	4
Number of cases	950	6,305	12,896	26,725	15,420	14,230	8,174	833
Number of hospitals	20	212	338	939	397	445	300	26
Total hip replacement								
Number of regions	0	7	7	14	11	6	7	0
Number of cases		5,828	4,356	11,455	18,196	4,142	6,563	
Number of hospitals		164	236	496	850	218	327	

SOURCE: ProPAC analysis of 1986 MEDPAR data.

Table 1–18. Distribution of Rural Regions Among Average Total Operating Cost Deviation Ranges for Three Case Types

Case type	Cost Deviation Ranges							
	< -$2,000	-$2,000 to -$1,001	-$1,000 to -$501	-$500 to $0	$0 to $500	$501 to $1,000	$1,001 to $2,000	> $2,000
CABG								
Number of regions	6	2	1	0	1	0	3	8
Number of cases	584	102	142		204		318	431
Number of hospitals	9	2	2		1		4	10
Resection of intestines								
Number of regions	1	6	5	8	13	6	8	2
Number of cases	23	2,830	1,804	4,144	6,787	2,251	2,135	101
Number of hospitals	7	271	205	378	645	198	217	13
Total hip replacement								
Number of regions	1	5	8	5	14	7	6	3
Number of cases	140	922	1,598	1,366	2,100	1,542	759	144
Number of hospitals	11	63	157	111	245	135	72	12

SOURCE: ProPAC analysis of 1986 MEDPAR data.

Compared with urban areas, rural regions that had total hip replacement cases demonstrated more variation across the cost deviation ranges. The distributional pattern was similar to the intestinal resection cases, with fewer regions in the tails (4) compared with the center of the distribution (19). Average total operating costs ranged from $5,786 to $15,843, with a mean cost $7,904.

This initial analysis demonstrated considerable geographic variation in the cost of treating patients for each of the selected case types. There also appeared to be some geographic pattern across case types for urban regions. Comparisons of the two extreme tails of the distribution for urban regions show that two of the four high-cost intestinal resection regions were also high-cost CABG regions. One of the two low-cost intestinal resection regions was also a low-cost CABG region. Among rural regions, only one high-cost hip replacement region was also a high-cost CABG region. The only low-cost intestinal resection region was also a low-cost CABG region.

Further analyses of geographic variation in treatment costs have been planned. Additional case types will be examined, and geographic patterns of cost variation will be studied. Future analyses will include determining how volume and specific services, such as laboratory, radiology, and drugs, contribute to the variation in total costs.

ACCESS AND QUALITY OF CARE

Utilization trends of selected groups, subacute care, new technologies, and geographic variations have been discussed. Although not tied directly to the Commission's quality agenda, these and most ProPAC studies are reviewed carefully for indications that PPS incentives might have resulted in quality or access problems. Based on these and other studies, the Commission has not found evidence that systematic quality and access problems have occurred in the inpatient setting since the implementation of PPS. However, the Commission is aware that there are major gaps in the information base used to define and identify high-quality care. ProPAC research in these and other areas will continue.

Similarly, there is limited experience with systems that measure quality of care. Recent movement to develop more consensus around definitions and standards of measurement for quality care bode well for the future. But quality is still often a subjective judgment and will continue to be.

Systems for Monitoring Hospital Care

Various systems are now in place for assessing quality of care. Perhaps the best systems for measuring and monitoring quality exist in the inpatient hospital setting. The Joint Commission for Accreditation of Health Care Organizations (JCAHCO)

carries out the 75-year-old tradition of private sector quality review. Medicare built upon this system when it was enacted in 1965, and the program still relies on JCAHCO for major portions of its basic health, safety, and quality regulatory scheme. PROs, successors to earlier Professional Standards Review Organizations (PSROs), have developed sophisticated techniques for reviewing hospital utilization and are evolving techniques for quality review. Hospitals themselves have long seen a need to examine the quality of the care they furnish, not only to meet state and Federal requirements, but also to carry out their own mission, which requires careful attention to quality assurance.

This year, ProPAC conducted and reviewed studies on the PRO preadmission review process, trends in hospital use of computerized quality assurance systems, use of hospital mortality statistics, and Medicare conditions of participation. The study of the preadmission review process indicated the process seems to be appropriate and often helps guard against unnecessary hospitalization of patients when other treatment is suitable and available. The study of trends in the development and use of hospital quality assurance computer systems indicated a growing use and demand for such systems, especially in large, sophisticated hospitals.

HCFA consulted with many organizations and individuals before releasing Medicare hospital mortality statistics in 1987. The Commission reviewed HCFA's development and release of the data, and supported the agency's initiative. Nevertheless, ProPAC expressed concern about how the data would be used and interpreted. In the Commission's view, the information is a useful screen, particularly for hospitals to review and analyze their own practices. It should not be used as a direct measure of quality. ProPAC also supports longitudinal studies of the data, as well as additional technical and statistical research to refine the methodology used to develop future mortality statistics.

The Commission's review of the legal and regulatory requirements established before a hospital can participate in Medicare reveals a strong basic system, built on the private JCAHCO certification program. Although the Commission regards this system as sound and appropriate, it is only the most basic of approaches to ensure patient health and safety.

Peer Review Organizations

Peer Review Organizations examine the utilization and quality of hospital services provided to Medicare patients under PPS. The PRO program will begin a third contract cycle this year. While the first two contract periods were two years each, HCFA will begin staggered three-year contracts with PROs. More than 40 contractors are expected to be selected to conduct PRO review activities in the 54 PRO areas.

The cost of PRO operations increased from $339 million in the first two-year contract period to $357 million in the second two-year contract period. PROs received $131 million in fiscal year 1988. A budget of $322 million has been proposed by the Department of Health and Human Services for fiscal year 1989 to allow for expanded review of ambulatory surgery, substandard care, preadmission review of high-volume surgical procedures, and review of second surgical opinions.

Although PROs primarily perform retrospective chart review, they also prospectively evaluate the appropriateness of admission for five selected procedures. Retrospective review activity has increasingly emphasized quality of care review; this work includes the application of six generic quality screens to better identify cases with potential problems.

PROs also conduct admission reviews to determine medical necessity and appropriateness, discharge reviews to detect premature discharges, DRG validations, and coverage reviews. Most of these retrospective reviews are applied to:

- A 3 percent random sample of cases;
- All transfers, readmissions within 15 days of a previous admission, and cases in DRGs 88 (chronic obstructive pulmonary disease), 462 (rehabilitation), and 468 (unrelated operating room procedure);
- Fifty percent of outlier cases;
- Intensified review of hospitals with identified problems; and
- Other cases meeting an individual PRO's objectives to reduce adverse outcomes and unnecessary admissions or procedures.

HCFA estimates that about 25 percent of PPS admissions undergo PRO review. Data from July 1986 to November 1987 show that 11 percent were preadmission reviews and 89 percent, retrospective reviews. Readmission cases accounted for the greatest number of reviews and payment denials (see Table 1-19). Only 14 percent of denials were made on the basis of an unnecessary admission, unnecessary multiple admissions, or other practices intended to circumvent the PPS rules. Although payment denials initially were issued for 2.6 percent of the cases reviewed, 40 percent were later reversed by the PROs when reconsideration was requested, ultimately resulting in the denial of 1.5 percent.[24]

Quality Screen Results—PROs uniformly apply six quality screens to all cases they review retrospectively (see Table 1-20). Record reviewers flag all cases failing to meet any of the screen criteria. These cases are subsequently examined by the PRO physician reviewer, who decides whether the screen has identified an actual quality problem. Currently, payment denials are not issued on the basis of quality problems identified by the screens, but this is expected to change.

Of the six screens, "medical stability at discharge" pinpointed the greatest number of cases failing to meet the criteria. When these cases were further analyzed by the physician reviewer, however, only 20 percent were judged to involve actual quality problems. The greatest percentage of actual problems was identified by reviewing "adequacy of discharge planning" and the fewest by screening for "avoidable deaths" and "unscheduled returns to surgery." Although the latter two appear to be relatively inefficient screens, they nevertheless seem essential to quality review.

The number of quality problems identified by the screens varies substantially among the 54 PROs (see Figure 1-2). For each screen, 50 percent of the PROs found 1.5 or fewer problems per 100 records reviewed; however, some PROs identified considerably more. Further study is needed to clarify the extent to which these differences reflect PRO or screen performance rather than real variations in quality.

HCFA contracts with SysteMetrics, Inc., to audit a sample of all PRO reviews. This so-called SuperPRO samples records to identify quality of care problems. SysteMetrics found that 12 percent of the cases failed one or more of the quality screens, whereas the PROs found just 8 percent. Some of the discrepancy between the overall PRO and SuperPRO rates may be related to differences in their decision processes. For instance, the PRO can discuss the case with the attending physician, whereas the SuperPRO can consider information in the medical record only.

Although these statistics raise questions concerning the quality of care Medicare beneficiaries receive, the data must be interpreted carefully. In some cases, poor chart documentation may result in an incorrect judgment that poor quality care has

Table 1-19. PRO Reviews and Payment Denials Reported to HCFA as of January 1988

Type of Cases Reviewed	Number of Cases Reviewed	Number of Cases Denied	Percent of Cases Denied
Preadmission review	313,064	5,426	1.7%
Retrospective review, total*	2,431,529	64,675	2.7
Random sample	275,274	6,724	2.4
Transfers	329,119	5,176	1.6
Readmissions	837,315	23,676	2.8
Focused DRGs	230,600	5,213	2.3
Outliers	161,918	1,832	1.1
Intensified review	210,340	9,100	4.3
Objectives	531,553	16,904	3.2
Other	80,589	3,006	3.7
Total number of reviews+	2,744,593	70,101	2.6

* Some cases may have been denied by more than one type of review. The totals represent unduplicated counts.

\+ Prior to appeal.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of Medical Health Standards and Quality Bureau

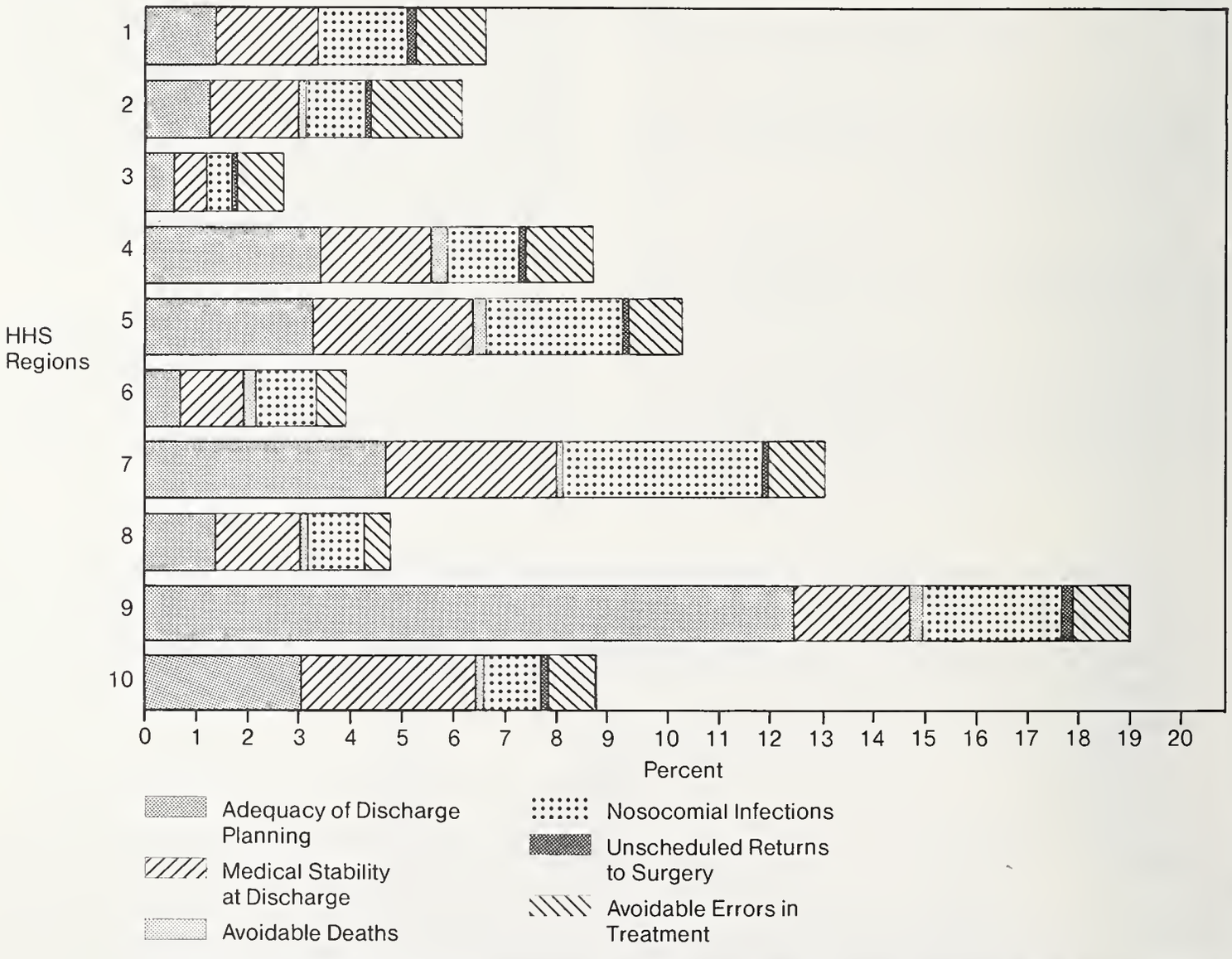
Table 1-20. Cases Failing the Generic Quality Screens Found to Represent Actual Quality Problems*

Type of Review	Number of Cases Failing Screen	Number of Acutal Problems Found	Percent of Actual Problems Found
Adequacy of discharge planning	10,739	9,740	90.7%
Medical stability at discharge	29,409	5,909	20.1
Avoidable deaths	3,461	475	13.7
Nosocomial infections	14,772	5,138	34.8
Unscheduled returns to surgery	1,477	202	13.7
Avoidable errors in treatment	9,934	3,158	31.8

* All reviews were conducted between July 1986 and November 1987.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of Medical Review, Health Standards and Quality Bureau.

Figure 1-2. Regional Variations in PRO Identification of Quality Problems* (3% Sample)



*Column totals overestimate the total percentage of cases involving quality problems, because a single case may involve more than one type of quality problem.

SOURCE: HCFA, Health Standards and Quality Bureau, Office of Medical Review

been provided. Further, there is no way to determine whether these data reflect changes in quality of care that have occurred since PPS because there are no comparable data for pre-PPS cases.

Sanctions—The HHS Office of the Inspector General (OIG) considers PROs' recommendations for sanctioning providers because of substandard quality of care. From the beginning of the PRO program through September 1987, the OIG considered 125 cases. One hospital and 59 physicians were suspended. One hospital and 24 physicians received monetary penalties, and 44 cases were overturned. New legislation related to the sanction process allows for a hearing before an administrative law judge for sanctioned rural physicians.

Future Review Activities—Several changes in PRO activities are anticipated for the upcoming contract period. These include decreasing to 50 percent or less the proportion of cases reviewed in the following categories: transfers; readmissions; outliers; and cases in DRGs 88, 462, and 468. Readmissions will include all cases readmitted within 31 days instead of 15. Preadmission review will increase to ten selected procedures. New review activity will focus on examining ambulatory surgery and intervening care. Intervening care refers to non-inpatient services delivered to patients between admissions. Finally, review will begin for all cases in two new DRGs (474 and 475, respiratory system diagnoses involving tracheostomy and ventilator support), as well as newborn DRGs and DRG 457 (extensive burns).

Additional Quality Assurance Monitoring Systems

To assure quality in the Medicare program, it is appropriate to expand mechanisms beyond the current conditions of participation and PRO activities. These two mechanisms have been oriented primarily toward review and measurement of the structure and process of medical care in the hospital.

ProPAC has previously recommended a major national evaluation of findings from the PROs. The variation in quality screen results described above leads Commissioners to conclude that this evaluation is more important than ever.

Two other important steps are necessary. The first must be to move toward methods and systems for outcome-oriented quality assurance monitoring and review. The U.S. health system has developed models for review of utilization of services unequaled elsewhere in the world. Now systems must be developed that review health outcomes of medical care and answer questions about the value of care to the health of the individual. This will require moving beyond inpatient hospital review and looking at all of a patient's medical needs and care.

There is a second important step in quality assurance review. Quality assurance methods and techniques must be applied in the many alternative sites of care. Throughout this report, the Commission documents the rapid growth of these sites and the large shifts in site-of-service delivery. Care that only a few years ago was delivered in hospitals is now supplied in ambulatory surgery centers, diagnostic imaging centers, specialized care centers such as those for cancer treatment, ambulatory care centers and physician's offices, hospices, and patients' homes.

Monitoring and review of the process and structure of this care are often lacking, raising serious questions about quality. Movement toward outcome-oriented review could help overcome some of the barriers and problems associated with quality review in today's diverse settings.

The Commission strongly believes these issues are critical and should be high on the health policy agenda in the coming months and years. The work being undertaken by the Institute of Medicine to design a strategy for quality review and assurance in Medicare will substantially enhance understanding and informed debate on these issues.

SUMMARY

Declines in hospital LOS and admissions indicate that patient care has indeed changed over the past several years. Although there is no evidence of a systematic decline in the quality of inpatient care, changes should continue to be monitored carefully; the care provided to certain vulnerable patient groups warrants special attention. The types of services available after acute care are especially important. ProPAC's subacute care study found little of this type of care provided in inpatient settings after acute care. Variations in the availability

of post-acute care require further study, however. The utilization of post-acute care and other non-inpatient care is increasing. The relationship between the growing use of non-inpatient services and PPS is a speculative matter because many factors may contribute to this trend.

Since the implementation of PPS, important new technologies have successfully been integrated into health care delivery. High-technology services continue to be added at community hospitals, although they are also increasingly available at other sites. The use of expensive devices also continues to increase. Apparently, the cost of new technologies accounts for only a small portion of the annual increase in total Medicare expenditures for hospital operating costs. It appears, however, that expanded indications for the use of new technologies and changing practice patterns may drive up costs substantially. PPS also seems flexible enough to accommodate most new technologies and to provide appropriate financial incentives. This has been partially accomplished through changes in the prospective payment system, but improvements are still possible.

PPS was expected to provide hospitals with incentives to specialize in certain procedures. Although the total volumes of certain procedures and the volume per hospital have increased, there is little evidence that extensive concentration (consolidation or clustering of procedures in a few high-volume facilities) has taken place. Those hospitals with the highest volumes of specialized procedures experienced lower mortality rates. Costs of various procedures were also found to vary across geographic regions.

Systematic quality and access problems have not developed in the inpatient setting since the implementation of PPS. This conclusion is drawn despite an awareness of major gaps in the information base used to define and identify high-quality care. The work done by the Medicare PROs is especially important. There is, however, considerable variation in the number of problems identified by each PRO. A study of these variations is needed to clarify the extent to which the differences reflect PRO or screen performance rather than real variations in quality. Because no comparable data for the pre-PPS period exist, it is impossible to determine whether quality of care has changed since PPS implementation. Finally, the growing utilization of alternative sites of care calls for extending quality of care review mechanisms to these sites.

Notes to Chapter 1

1. American Hospital Association National Panel Survey, December 1987.

2. The term "intended destination" refers both to services (e.g., home health service) and to facilities (e.g., skilled nursing facility) that are anticipated after discharge. This information is recorded from the medical chart. Hospital data do not indicate whether the patient actually receives a service or is admitted to a facility after hospitalization. Therefore, patient access to institutional or community-based health services cannot be evaluated, nor can Medicare coverage of such services or admissions be presumed.

3. Patients with dementia as a secondary diagnosis were selected from the following DRGs: 14 (specific cerebrovascular disorders except TIA); 89/90 (simple pneumonia and pleurisy w/ and w/o cc); 127 (heart failure and shock); and 210 (hip and femur procedures except major joint).

4. Patients with hip fracture and hip procedures were selected from the following DRGs on the basis of principal diagnosis and procedure codes: 209 (major joint procedures); 210/211 (hip and femur procedures except major joint, w/ and w/o cc); 236 (fracture of hip and pelvis); and 471 (bilateral or multiple major joint procedure of lower extremities).

5. Admissions of all buy-ins decreased over 3 percent from fiscal year 1985 to fiscal year 1986. However, during this period, the buy-in population grew over 1 percent, resulting in a 5 percent real decrease in admissions.

6. *Subacute Care in Hospitals*, prepared by Lewin/ICF under ProPAC contract Nos. T-33731566 and T-47541399, March 1988. The American Hospital Association performed the national survey under ProPAC contract No. T-47541357.

7. A provision in Medicare regulation allows small rural hospitals to license a limited number of beds as both acute and skilled nursing beds. These are referred to as swing beds.

8. Information in this section extracted from *An Analysis of Changes in Medicare Part A and Part B Utilization and Expenditures from 1980 to 1985*, prepared by SysteMetrics/McGraw-Hill, Inc. under ProPAC contract No. T-47540316.

9. U.S. Congress, Office of Technology Assessment, *Medicare's Prospective Payment System: Strategies for Evaluating Cost, Quality, and Medical Technology*, OTA-H-262 (Washington, DC: U.S. Government Printing Office, October 1985).

10. American Hospital Association, Hospital Statistics, 1981 to 1987.

11. Earl P. Steinberg, "The Status of MRI in 1986: Rates of Adoption in the United States and Worldwide," *American Journal of Radiology* 147:453-55, September 1986.

12. American Hospital Association, Hospital Statistics, 1981 to 1987.

13. "Lithotripter Developments," *Biomedical Business Journal* IX, 210, 1986.

14. Bruce J. Hillman, C.R. Neu, John D. Winkler, et al., "The Diffusion of Magnetic Resonance Imaging Scanners in a Changing U.S. Health Care Environment," *International Journal of Technology Assessment in Health Care* 3(4): 545-54, 1987.

15. Medical Technology and Practice Patterns Institute, *Outpatient Magnetic Resonance Imaging Operating and Capital Costs, Medicare Payments, and Utilization Rates* (Washington, DC: Medical Technology and Practice Patterns Institute, November 1987) 11.

16. "Lithotripsy on Wheels: A Passing Fad?" *Hospitals* 61(12):114, June 20, 1987.

17. DRGs 1, 53, 55, 104-112, 115-118, 201, 209-211, 218-219, 223-224, 228-229, 233-234, 315, 341.

18. Costs and payments were simulated to determine relative differences between them. These payment margins do not represent actual dollar differences.

19. *The Impact of Medicare Prospective Payment on the Use of Expensive Devices, 1984-1986*, prepared by Project HOPE under ProPAC contract Nos. T-33731391, T-47540581, and T-31416362, March 1988.

20. Prospective Payment Assessment Commission, *Technical Appendixes to the Report* and *Recommendations to the Secretary, U.S. Department of Health and Human Services, March 1, 1988* (Washington, DC: ProPAC, March 1, 1988).

21. Anne A. Scitovsky, "Changes in the Costs of Treatment of Selected Illnesses, 1971-1981," *Medical Care* 23(12):1345-57, December 1985.

22. Jonathan A. Showstack, Mary Hughes Stone, and Steven A. Schroeder, "The Role of Changing Clinical Practices in the Rising Costs of Hospital Care," *New England Journal of Medicine* 313(19):1201-07, November 7, 1985.

23. Payments and costs were simulated to determine relative differences between the two. These payment margins do not represent actual dollar differences.

24. A single patient stay may be denied more than once since records undergo several types of review.

Chapter 2

Hospital Organization, Resources, and Financial Condition

Chapter 2

Hospital Organization, Resources, and Financial Condition

When PPS was introduced in 1983, the hospital industry was undergoing significant changes in health care delivery. Hospital admissions were declining as more patients were treated in alternative sites of care. This change in the site of service delivery also contributed to reduced length of stay as patients who were hospitalized received more of their care in skilled nursing facilities, physicians' offices, and at home. PPS intensified the trend to move services from inpatient to outpatient settings by further reducing length of stay while admissions were continuing to decline. Initially, the system had a dramatic effect on constraining the cost of inpatient care. This initial response was temporary, however, and hospital costs now continue to rise at pre-PPS rates.

This chapter discusses changes in hospital organization, resources, and financial condition under PPS. It begins with a discussion of changes in the hospital work force, the component composing the greatest share of hospital costs. An analysis of hospital use of capital resources—another major input in health care—follows. The chapter also presents trends in hospital labor productivity, costs, revenues, operating margins, and other financial indicators. It concludes with a general discussion of changes in the structure of the hospital industry and selected hospital managerial strategies.

CHANGES IN HOSPITAL EMPLOYMENT

Hospitals experienced a significant downturn in total employment levels at the time PPS was introduced. After declining 2.3 percent in both 1984 and 1985, however, total hospital employment is once again increasing (see Table 2-1). This more recent growth resulted largely from increased employment in the outpatient area, while inpatient full-time equivalents (FTEs) are still falling. Hospitals continue to employ a greater proportion of part-time personnel. Between 1986 and 1987, growth in the number of part-time personnel outpaced full-time personnel by almost 2 percentage points.

Table 2-1. Change in Hospital Employment, 1978–1987 (In Percent)

Year	Total Hospital FTEs	Inpatient FTEs	Total Personnel	Full-Time Personnel	Part-Time Personnel
1978	3.7%	3.2%	4.1%	3.3%	6.8%
1979	3.5	3.3	3.9	3.0	6.7
1980	4.7	4.5	5.2	4.0	9.1
1981	5.4	5.1	6.0	4.8	9.4
1982	3.7	3.4	3.7	3.6	4.1
1983	1.4	0.8	1.5	1.2	2.3
1984	-2.3	-3.5	-2.1	-2.6	-0.8
1985	-2.3	-4.3	-1.8	-2.7	-0.1
1986	0.3	-1.4	0.4	0.3	0.7
1987	0.7	-0.7	0.9	0.4	2.3
Averages:					
1978–1983	3.7	3.4	4.1	3.3	6.4
1984–1987	-0.9	-2.5	-0.7	-1.2	0.5

SOURCE: American Hospital Association National Hospital Panel Survey.

For many occupational categories, hospitals are shifting employment away from less skilled to more skilled workers, as shown in Table 2-2. This trend is most pronounced for the nursing category, where registered nurses (RNs) now represent about 65 percent of nursing personnel, compared with 50 percent in 1980. Between 1983 and 1986, the number of RNs increased by about 35,000, while the number of other nursing personnel decreased by about 125,000. In other words, for every two RNs added to the hospital work force during this period, hospitals reduced their work force by seven other nursing personnel. Hospitals may have shifted to more RNs because they are versatile employees and can substitute for other non-nursing personnel, whereas other hospital personnel generally cannot substitute for RNs.

The shift has contributed to increased demand for RNs, which has led to widespread concern about their availability. A recent survey of hospital nurse executives conducted by the American Organization of Nurse Executives of the AHA showed that the vacancy rate for RN positions doubled from 6.5 percent in 1985 to 13.6 percent in 1986. Only 17 percent of the hospitals surveyed had no RN vacancies. Vacancy rates may overstate hospital staffing needs, however, because hospitals may not accurately adjust their staffing requirements to reflect declining utilization. Nevertheless, anecdotal information supports the views that hospitals are experiencing difficulty in hiring the desired number of RNs. Furthermore, difficulties in recruiting and retaining RNs are magnified by declining interest in nursing as a career choice. Since 1983, there has been about a 25 percent reduction in the number of RN graduates. Several schools have closed their nursing programs.

Vacancy rates seem to be growing despite an increase in the number of RNs employed in hospitals. In 1986, the number of FTE RNs employed in short-stay hospitals rose by about 25,000 over the prior year. Moreover, the number of FTE RNs employed per 100 hospital inpatients has increased by about 20 percent since 1983, from 80 RNs per 100 inpatients to 95 per 100 inpatients in 1986.[1] This is consistent with the shift to a predominantly RN nursing staff. Some analysts also attribute the growth in RN staffing levels to increased complexity of hospital inpatients' illnesses and more sophisticated nursing care requirements due to advances in medical technology and changes in practice patterns.

AHA National Hospital Panel Survey data show that growth in hospital labor expenses per FTE

Table 2–2. Distribution of Hospital Employees, Within Occupational Category, 1980 and 1984–1986 (In Percent)

Occupations	1980	1984	1985	1986
Registered nurses	49.3%	60.4%	62.9%	64.7%
Licensed practical nurses	18.1	17.8	16.7	15.6
Ancillary nursing personnel	32.6	21.8	20.4	19.7
Radiology technologists	63.9	69.1	69.3	69.8
Other radiologic personnel	36.1	30.9	30.7	30.2
Occupational therapists	73.4	78.9	79.3	81.2
Occupational therapy assistants and aides	26.6	21.1	20.7	18.8
Physical therapists	50.9	53.9	54.8	55.8
Physical therapy assistants and aides	49.1	46.1	45.2	44.2
Pharmacists, licensed	54.0	53.3	53.5	52.9
Pharmacy technicians	46.0	46.7	46.5	47.1
Medical technologists	52.6	55.7	55.9	55.0
Other laboratory personnel	47.4	44.3	44.1	45.0
Dietitians	25.9	31.6	32.6	31.5
Dietetic technicians	74.1	68.4	67.4	68.5

SOURCE: American Hospital Association Annual Survey.

declined considerably in 1983 (see Table 2-3). The growth rate continued to be low through 1986, but accelerated again in 1987. The decline in general inflation was a major cause of the lower growth in hospital labor expenses per FTE over the period 1983 through 1986, although PPS probably contributed to the lower growth rate as well. Changes in labor expenses per FTE continued their historical pattern of increasing faster than general inflation, however. This is partly caused by an increase in hospital skill mix and a shift to more part-time staff.[2] In addition, part of the higher labor expense growth in 1987 may be caused by the shortage of nursing and allied health personnel.

Table 2–3. Change in Labor Expenses, 1978–1987 (In Percent)

Year	Labor Expenses Per FTE	Average Salary	Benefits Per FTE
1978	8.9%	8.4%	12.0%
1979	9.4	9.3	10.3
1980	11.4	11.3	11.9
1981	13.1	12.5	17.0
1982	12.0	11.0	18.8
1983	7.9	7.2	11.9
1984	6.3	5.6	10.0
1985	6.7	6.6	7.6
1986	6.9	7.2	5.4
1987	8.4	8.6	7.5

SOURCE: American Hospital Association National Hospital Panel Survey.

CAPITAL RESOURCES

Capital resources continue to consume a growing portion of total hospital expenses, although at a slower rate than in previous years (see Figure 2-1 and Table 2-4). Capital costs (depreciation and interest) increased 11.6 percent between 1986 and 1987, compared with an 11.2 percent increase one year earlier. The percent change in depreciation expense increased between 1986 and 1987, while the percent change in interest expense continued to fall. Depreciation expense, a measure of the capital stock of the industry, tends to fluctuate less than interest because of the long-term nature of capital investments. Interest expense is more volatile, reflecting changes in interest rates and external financial markets and instruments.

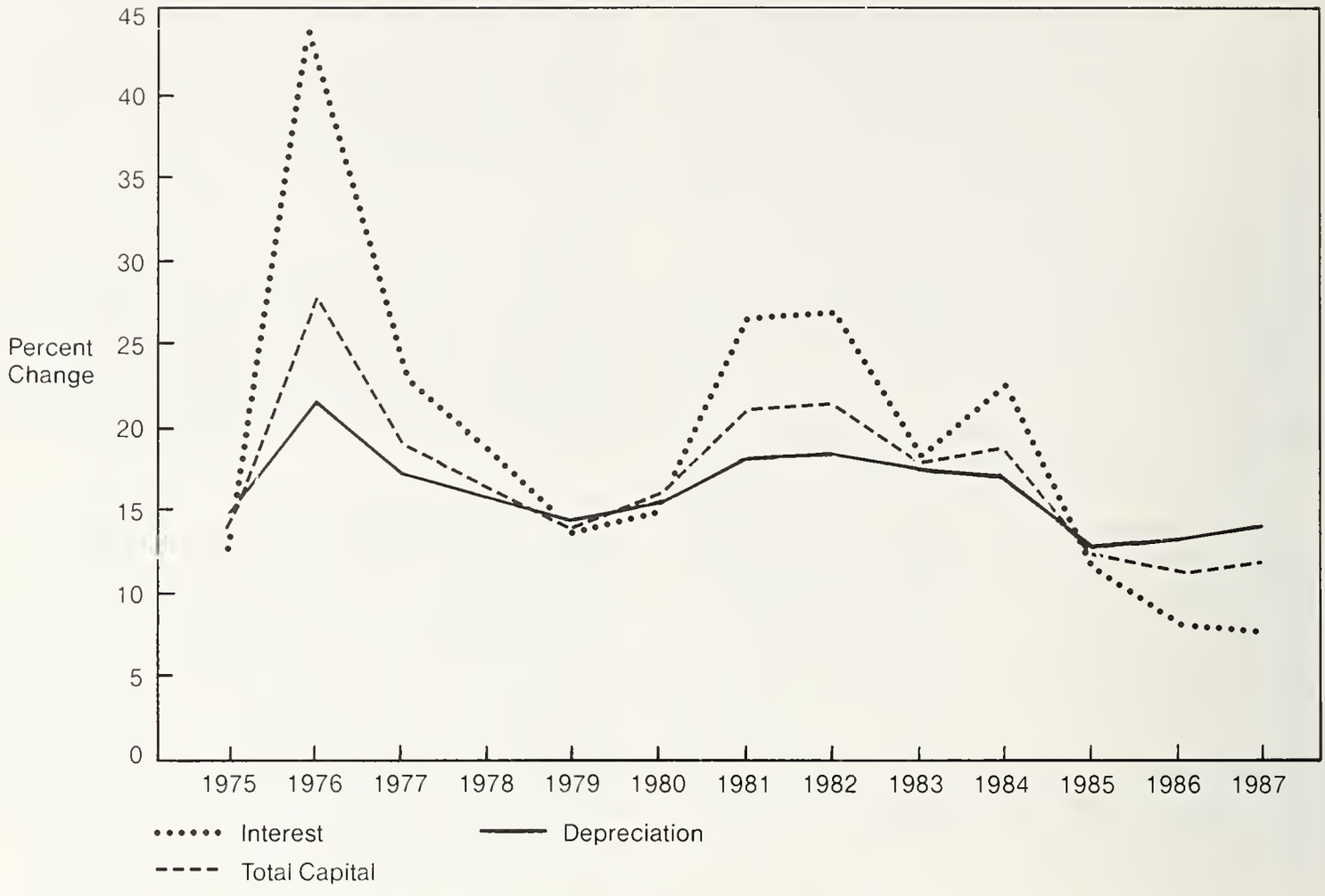
Annual growth in capital costs declined dramatically between 1984 and 1985, representing the largest single-year decline since 1977 (see Figure 2-1). Slower growth of both interest and depreciation expense contributed to the decline. Slower growth in depreciation for this period indicates that hospitals postponed investing in major capital projects in the years preceding and immediately following the introduction of PPS.[3] The rate of increase in depreciation would accelerate if hospitals were undertaking such projects because current capital costs would be substituted for historical costs.

Capital costs per case are increasing faster than total capital costs, reflecting the decline in admissions (see Figure 2-2). Adjusting admissions for outpatient activity, however, reduces the rate of growth and level of capital costs per case.[4] This adjustment recognizes that a portion of capital costs is attributable to hospital outpatient activity.

There is not enough evidence to determine the extent to which PPS payment policies have affected hospital capital spending behavior. By paying hospitals for capital on a cost basis while making operating payments on a prospective basis, hospitals have incentives to choose capital over operating inputs, even when this is not the optimal combination of these inputs. On the other hand, PPS incentives to reduce operating costs may have initially constrained hospital capital spending. Research has shown that, historically, capital expenditures increase operating costs in future years.[5] The current relationship between capital and operating costs is unclear, however, because the hospital product is changing so rapidly. Nevertheless, incentives to reduce operating costs, combined with uncertainty about future Medicare capital payment policy, may have constrained growth in capital costs in the years preceding and immediately following PPS.

Two factors indicate that capital spending may be on the rise once again. First, after a sharp decline in 1985, depreciation expense appears to be returning to historical rates of growth. Second, the volume of tax-exempt financings (TEFs) increased almost 300 percent between 1984 and 1985. This surge was primarily due to hospitals' uncertainty over upcoming tax reform changes and their desire to take advantage of lower interest rates. Refundings accounted for about 38 percent of total volume in 1985. The remainder of the TEF volume can be attributed to new capital spending. It takes from one to three years to complete a

Figure 2-1. Annual Percent Change in Capital Costs



SOURCE: American Hospital Association National Hospital Panel Survey

Table 2-4. Hospital Capital/Total Cost and Capital/Operating Cost Ratios, 1980–1987 (In Percent)

	Capital/Total Cost		Capital/Operating Cost	
Year	Ratio	Change	Ratio	Change
1980	6.2	-1.6%	6.6	-1.5%
1981	6.3	1.6	6.7	1.5
1982	6.5	3.2	7.0	4.5
1983	6.9	6.2	7.4	5.7
1984	7.9	14.5	8.6	16.2
1985	8.3	5.1	9.1	5.8
1986	8.4	1.2	9.2	1.1
1987	8.5	1.2	9.3	1.1

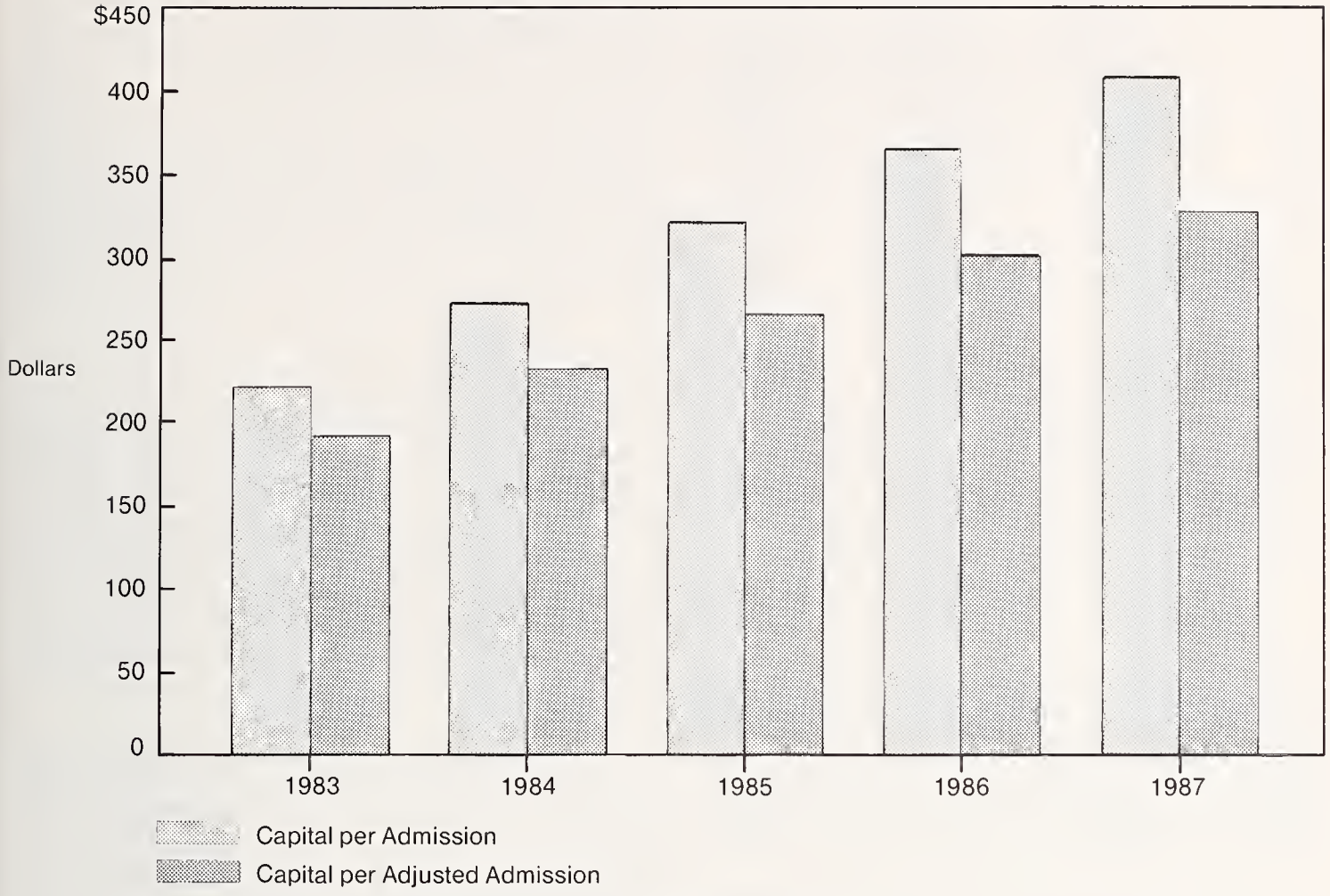
SOURCE: ProPAC analysis of American Hospital Association National Hospital Panel Survey.

major capital project once financing has been obtained.[6] The growth in TEFs, therefore, will probably contribute to increased capital expenditures through 1989 and later.

It is uncertain whether the surge in TEFs will contribute to higher capital spending in the long term, however. Hospital TEFs have declined considerably since 1985, in part because of less favorable market conditions. But the decline also indicates that hospitals adjusted the timing of their capital spending in 1985 to take advantage of optimal market conditions. If that capital spending would have occurred anyway, but simply at a later date, hospitals have indeed achieved capital cost economies by taking advantage of lower interest rates in 1985.

Finally, changes in Medicare inpatient capital costs may reflect hospital reporting strategies unrelated to capital spending behavior. Under cost-based payments for capital, hospitals have incentives to change their accounting practices to better identify and record capital costs, without changing

Figure 2-2. Capital Cost per Admission, Adjusted for Outpatient Activity



SOURCE: American Hospital Association National Hospital Panel Survey

inputs. A recent study of Medicare cost reporting practices indicates that hospitals are responding to these incentives by paying particular attention to identifying and recording capital costs.[7]

HOSPITAL LABOR PRODUCTIVITY[8]

To improve labor productivity, hospitals must reduce the number of hours of care provided per discharge (discharge productivity).[9] Hospitals can achieve discharge productivity gains in two ways. They can reduce *intensity*, or the number of services provided per discharge (e.g., laboratory tests, x-rays, and days of care). Hospitals can also improve *intermediate productivity* by reducing the number of hours required to produce individual services. These two strategies working alone or in tandem can result in discharge productivity gains. Any increases in services per discharge or hours per service contributes to a decline in hospital productivity.

Intensity reductions began in 1983 and continued during the first two years of PPS, after which intensity resumed an upward course (see Table 2-5). At the same time, the growth of hours per unit of service has gradually slowed down. The net result of these two trends was a reduction in the average rate of growth in hours per discharge for the first two years of PPS. In 1986 and 1987, however, there was a return to pre-PPS rates of growth in hours per discharge. Moreover, during all of the years studied, there was no absolute reduction in hours of labor per discharge.

Intensity

The sharp intensity decline in the first two years of PPS is due largely to a significant reduction in

Table 2-5. Changes in Hospital Labor Productivity, 1981–1987 (In Percent)*

Year	Hours Per Discharge (Discharge Productivity)	Hours Per Service (Intermediate Productivity)+	Services Per Discharge (Intensity)+
1981	4.5%	2.9%	1.6%
1982	4.4	3.1	1.2
1983	1.8	2.3	-0.4
1984	0.3	2.9	-2.3
1985	0.5	1.3	-1.2
1986	3.8	1.2	2.3
1987	3.0	1.0	1.8
Average Annual Change			
1981-1983	3.6	2.8	0.8
1984-1987	1.9	1.6	0.2

* Hospital labor productivity measures include: hours per discharge (discharge productivity), hours per service (intermediate productivity), and services per discharge (intensity). Increases in these measures indicate a decline in hospital productivity.

+ 'Services' are defined differently according to hospital department, e.g., patient days for medical/surgical; procedures for radiology.

SOURCE: Analyses of American Hospital Association's Hospital Administrative Services/Monitrend survey by Health Economics Research, Inc., under contract with ProPAC.

length of stay. The LOS decline began in the year preceding PPS and continued for two years after system implementation. Medical/surgical average length of stay declined 8.6 percent in 1984 and another 5.4 percent in 1985, and has remained essentially constant thereafter.

Intensity declines were not limited to LOS reductions, however. Inpatient laboratory and radiology intensity also fell over 4 percent in the first two years before returning to historical rates of increase.[10] This reduction was accompanied by significant growth in outpatient ancillary services. Even though inpatient laboratory and radiology intensity fell in the first two years of PPS, total (inpatient and outpatient) laboratory and radiology intensity actually rose 3 percent.

After 1985, however, the growth in outpatient services did not contribute to reduced inpatient intensity. Despite continuing trends toward more outpatient care in laboratory, radiology, and other ancillary departments, inpatient intensity actually grew. From 1985 to 1987, inpatient radiology and laboratory intensity rose more than 8 percent. The overall effect of these trends for departments such as laboratory and radiology, in fact, was an average annual increase in intensity of 1 percent for 1984 through 1987 (see Table 2-6).

The intensity upturn in 1986 may be explained by a variety of factors, including increased inpatient complexity and less potential for reducing services. Out of concern over quality and professional liability, for example, physicians and hospitals may be reluctant to reduce certain services, even though their benefits are unproven. The upturn may also represent decreased economic pressures on hospitals because of significant positive operating margins during the early years of PPS. As operating margins decline, intensity may again decline or the rate of increase may slow down.

Intermediate Productivity

Intermediate productivity continues to fall, but hospitals are attempting to constrain the rate of decline (see Table 2-5). In the three years prior to PPS, hours per service grew at an annual rate of 2.8 percent. In the first year after PPS implementation, the rate accelerated. It steadily slowed down during the next three years, however, resulting in a 1.6 percent annual growth rate from 1984 through 1987.

The initial increase in hours per unit of service in the first year of PPS coincided with the steep decline in LOS, which occurred during the first two years following system implementation. Declining LOS may have restricted productivity gains because many hospital inputs are fixed in the short run. Although hospitals reduced FTEs and labor hours, for example, these reductions were not sufficient to offset declines in LOS and admissions.

As hospitals began adjusting to a smaller scale, the decline in intermediate productivity slowed during 1986 and 1987. By 1987, in fact, the growth in hours per service had fallen to only 1 percent (see Table 2-5).

In summary, when faced with the prospect of significant resource constraints under PPS, hospitals reduced intensity through reductions in LOS and certain ancillary services. These strategies were relatively easy to implement in the short run. More difficult changes in the production of individual services, such as reducing the number of employee hours required to do specific tests, generally occur more slowly. Consequently, while the hospital industry has slowed the decline in intermediate productivity, it has failed to achieve any absolute gain.

Table 2–6. Average Annual Change in Hospital Labor Productivity by Hospital Department Group, 1981–1987 (In Percent)[a]

Department/Year	Hours Per Discharge (Discharge Productivity)	Hours Per Service (Intermediate Productivity)[b]	Services Per Discharge (Intensity)[b]
Medical/surgical			
1981–1983	1.8%	3.6%	-0.6%
1984–1987	-1.1	2.4	-4.5
Medical/surgical ICU			
1981–1983	6.8	3.4	2.9
1984–1987	5.1	0.5	4.6
Surgery			
1981–1983	1.6	3.1	-1.2
1984–1987	3.8	2.3	1.4
Radiology/laboratory/related ancillaries[c]			
1981–1983	4.1	2.6	1.3
1984–1987	1.2	0.5	1.0
Therapy ancillaries[d]			
1981–1983	7.3	3.1	4.8
1984–1987	1.7	0.0	2.2
Pharmacy/central/other patient services			
1981–1983	6.2	7.0	-0.8
1984–1987	3.7	5.7	-1.9
Administrative support[e]			
1981–1983	2.5	1.2	1.5
1984–1987	1.9	0.8	0.9

[a] Hospital labor productivity measures include: hours per discharge (discharge productivity), hours per service (intermediate productivity), and services per discharge (intensity). Increases in these measures indicate a decline in hospital productivity.

[b] 'Services' are specific to a department, e.g., patient days for medical/surgical departments, pharmacy, and central supplies; surgical visits (operations) for surgery; procedures for radiology services; workload units for laboratory and blood bank; treatments for respiratory therapy; and discharges for social services.

[c] Diagnostic radiology, therapeutic radiology, nuclear medicine, CAT scan, catheterization laboratory, laboratory and blood bank, and ECG/EEG.

[d] IV therapy, pulmonary function, hemodialysis, physical therapy, respiratory therapy, and rehabilitative services.

[e] General accounting, patient accounts and admitting, data processing, administrative, purchasing and stores, medical records, medical care evaluation, social services, medical staff service and education, plant operation and maintenance, security, utilities, housekeeping, laundry, and dietary services.

SOURCE: Analyses of American Hospital Association's Hospital Administrative Services/Monitrend survey by Health Economics Research, Inc., under contract with ProPAC.

Distributional Differences Across Hospitals and Departments

Hours per discharge have increased faster in rural than in urban hospitals. This is due to greater increases in both hours per service and services per discharge. The growth in hours per discharge varies slightly by bed-size groups. Smaller hospitals have reduced inpatient intensity, while larger hospitals have reduced the rate of growth in intensity and the decline in intermediate productivity.

The trends are not consistent by department, however (see Table 2-6). For example, on the medical/surgical inpatient units, hours per discharge declined an average of 1.1 percent for 1984 through 1987. This decline can be traced to a significant reduction in intensity primarily due to decreased LOS, coupled with a decline in the rate of growth of hours per service. On the other hand, hours per discharge increased in the intensive care units (ICUs) and in surgery throughout the 1980s.

TRENDS IN INPATIENT HOSPITAL EXPENSES, REVENUE, AND OPERATING MARGINS

The financial condition of the hospital industry as a whole improved dramatically in the first two years of PPS, but has declined since then. While much attention has been focused on the PPS years, a longer historical perspective is useful. This section first reports industrywide data from the American Hospital Association National Hospital Panel Survey. Trends for PPS-related costs and revenues, developed using Medicare Cost Report data, are then described.

Trends in Hospital Revenue

Revenue from outpatient services has become increasingly important to hospitals since the late 1970s (see Table 2-7). Outpatient revenue increased at an average annual rate of 17.0 percent from 1978 to 1987, compared with 10.9 percent for inpatient revenue. As a result, outpatient revenue was 18.6 percent of total revenue in 1987, compared with 12.3 percent in 1978. The trend is most dramatic after 1983. Outpatient revenue grew 16.7 percent between 1984 and 1987, compared with only 5.6 percent on the inpatient side. This finding is consistent with the practice pattern shifts toward outpatient services and away from inpatient hospital treatment described in Chapters 1 and 6.

Even accounting for differences in utilization patterns, outpatient revenue has increased faster than inpatient revenue. Increases in outpatient revenue per visit averaged 11.1 percent between 1984 and 1987, compared with an average 8.7 percent increase in inpatient revenue per admission. This difference may partly result from the emphasis placed on inpatient cost-containment efforts by Medicare and other payers.

Long-Run Trends in Industrywide Inpatient Expenses and Revenue

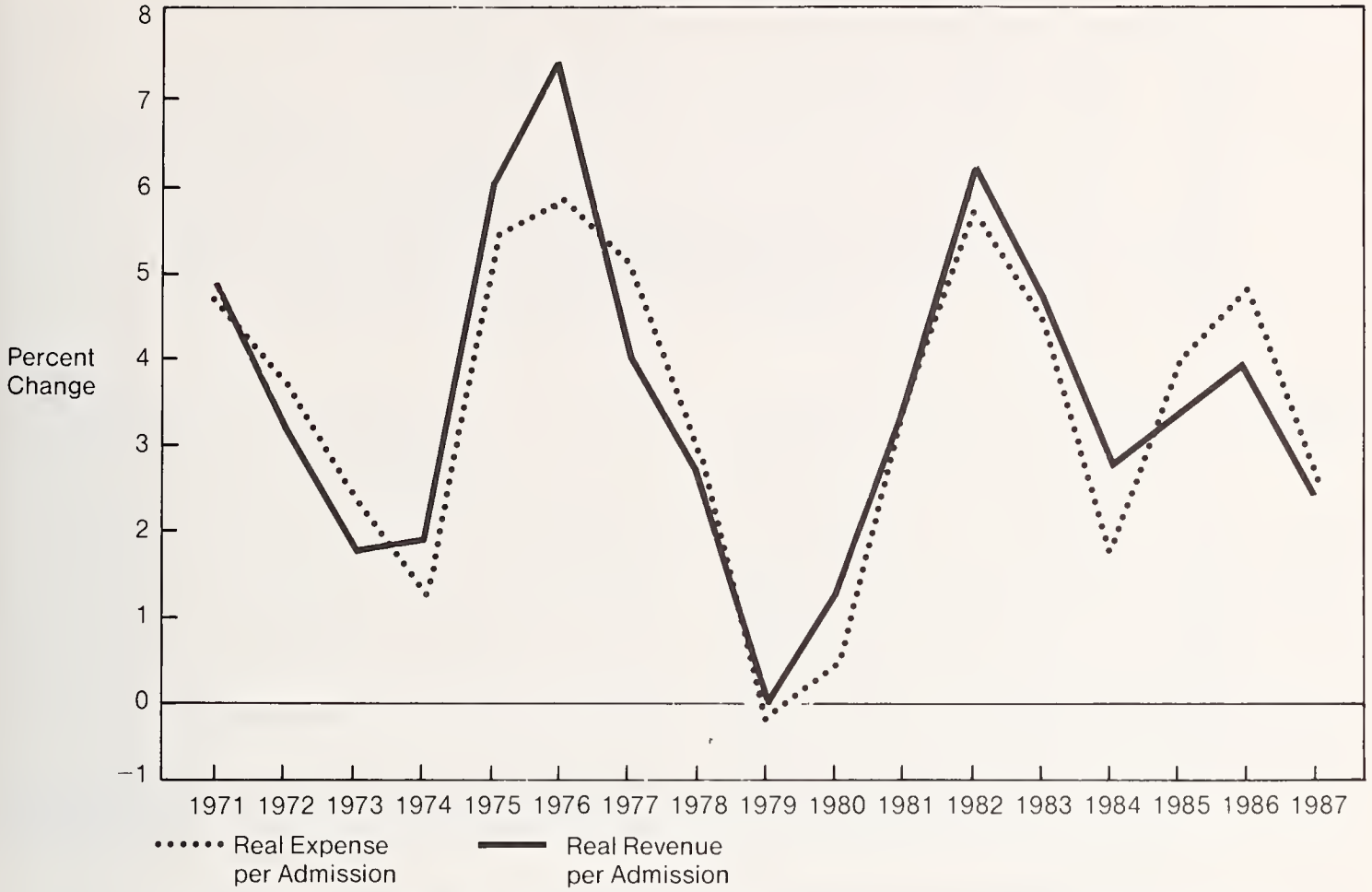
The first year of PPS marked a shift in the historical relationship between hospital revenue and expenses. In 1984, inpatient revenue grew faster than expenses, but by a much wider margin than ever before. Inpatient revenue per case increased 2.8 percent more than inflation in that year, compared with 1.7 percent for inpatient expenses (see Figure 2-3). For most of the period between 1970 and 1983, inpatient hospital expenses and revenue per case grew at similar rates, with revenue slightly outpacing expenses. Real expenses per case grew at a 3.4 percent average annual rate during this period, compared with 3.7 percent for revenue per case. The similar growth rates for revenue and expenses reflect the dominance of cost reimbursement during this period as well as the nonprofit nature of most of the hospital industry.

Table 2-7. Changes in Hospital Revenues and Proportion of Revenue Generated, by Source, 1978-1987 (In Percent)

Year	Inpatient Revenue	Outpatient Revenue	Other Revenue	Total Revenue	Inpatient Revenue Per Admission	Outpatient Revenue Per Visit	Total Revenue Per Adjusted Admission	Source of Revenue: Inpatient	Source of Revenue: Outpatient	Source of Revenue: Other
1978	12.0%	16.5%	17.3%	12.8%	11.6%	16.2%	11.7%	83.4%	12.3%	4.4%
1979	13.6	14.6	17.2	13.8	10.6	15.0	10.7	83.2	12.4	4.5
1980	17.8	19.3	13.0	17.7	14.5	15.7	14.2	83.2	12.5	4.3
1981	18.3	20.8	25.1	18.9	17.3	19.1	17.6	82.7	12.7	4.5
1982	16.2	18.1	13.2	16.3	16.1	16.8	16.0	82.7	12.9	4.4
1983	9.8	14.6	5.5	10.2	10.4	11.6	10.2	82.4	13.4	4.2
1984	4.6	14.0	8.2	6.0	8.6	12.3	8.7	81.3	14.4	4.3
1985	3.6	18.3	12.4	6.1	8.9	13.2	9.2	79.3	16.1	4.6
1986	6.2	17.3	6.5	8.0	8.5	8.3	8.4	78.0	17.5	4.5
1987	8.2	17.1	12.2	10.0	8.9	10.7	9.0	76.8	18.6	4.6
Averages:										
1978-1983	14.6	17.3	15.1	14.9	13.4	15.7	13.4			
1984-1987	5.6	16.7	9.8	7.5	8.7	11.1	8.8			

SOURCE: ProPAC estimates using data from the American Hospital Association National Hospital Panel Survey.

Figure 2-3. Annual Percent Change in Inpatient Hospital Expenses and Revenue per Case, Adjusted for Inflation, 1971-1987



SOURCE: ProPAC estimates based on data from the American Hospital Association National Hospital Panel Survey

Since 1985, however, expenses have grown faster than revenue. Real expenses per case between 1985 and 1987 grew at an average annual rate of 3.9 percent, higher than the historical average of 3.4 percent. Meanwhile, real revenue per case grew at a 3.4 percent rate between 1985 and 1987, which was lower than the 3.7 percent long-term average.

Hospital Industry Margins

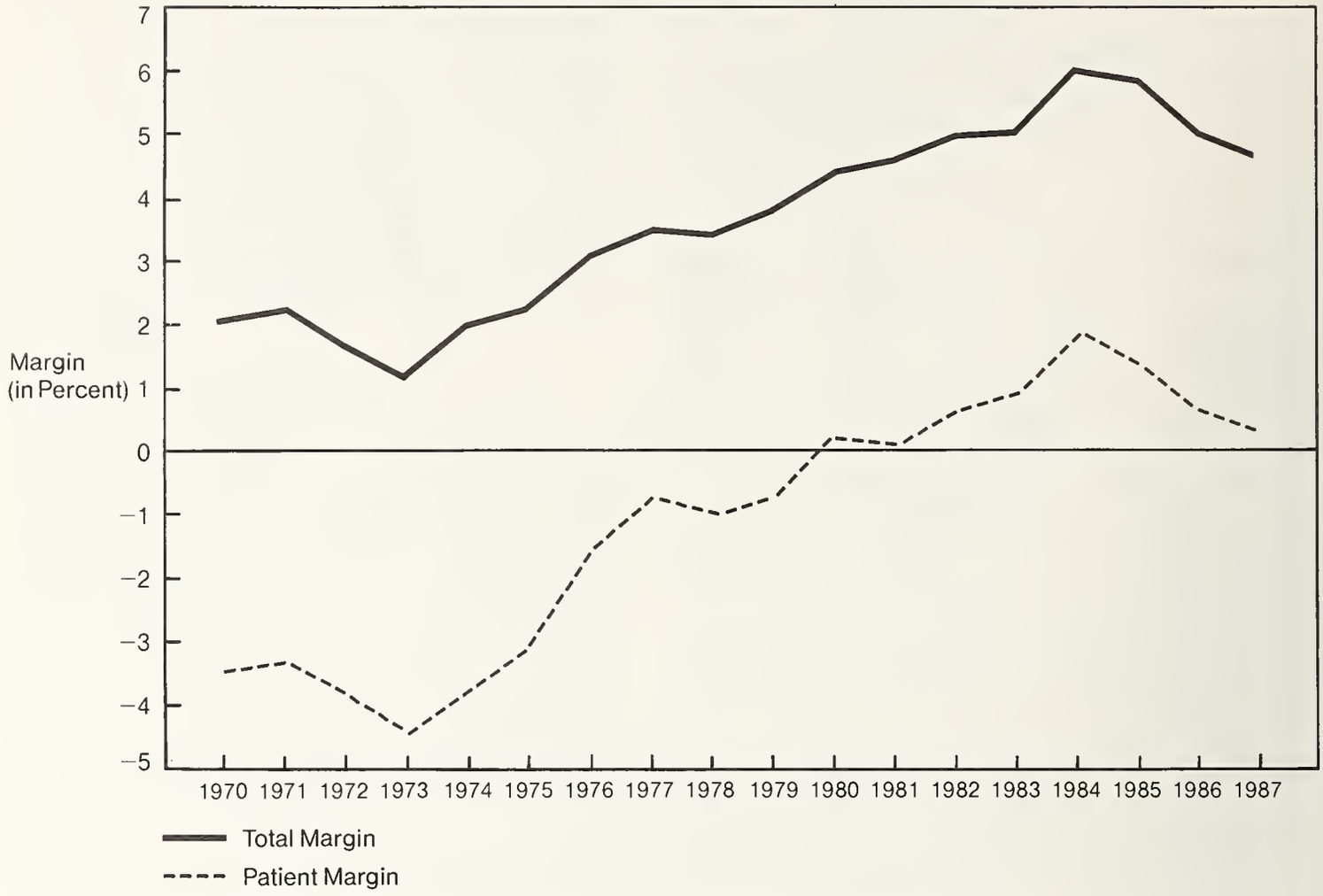
Consistent with the expense and revenue trends described above, total margins and patient margins grew steadily after 1973, peaking in 1984 and declining since then (see Figure 2-4). Total margins are the difference between revenue from all sources and total expenses, expressed as a percent of revenue. Patient margins differ from total margins in that they exclude revenue from nonpatient sources. Both margins are computed using total expenses. The total margin for 1987 was 4.7 percent, compared with a 1984 peak of 6.2 percent. The 1987 patient margin of 0.4 percent is down from its 1984 historical high level of 2.0 percent.

During the 1970s, overall industry patient margins were negative, while total margins remained positive. To some extent, this phenomenon portrays the effects of uncompensated care and the reliance of the industry on nonpatient revenue sources, such as charitable donations. Negative patient margins are also in part an accounting artifact. The costs of activities that generate nonpatient revenue are not distinguished from patient-care costs. In addition, revenue for patient care is sometimes classified as nonpatient revenue.

PPS Costs, Revenue, and Operating Margins

After reaching a high level at the start of the new payment system, PPS operating margins have

Figure 2-4. Hospital Operating Margins, 1970-1987



SOURCE: American Hospital Association National Hospital Panel Survey

declined due to rapidly rising costs combined with slow growth in PPS revenue. While Medicare and overall industry data measure different costs and revenue, the trends are consistent. Medicare data are an appropriate source for examining hospital financial performance under the PPS program. These data are not good indicators of overall hospital financial condition, however, because they exclude expenses and revenue from other payers. Moreover, Medicare operating costs are defined to exclude capital and certain other expenses.

During the first year of PPS, Medicare operating costs declined substantially (see Table 2-8). Aggregate Medicare operating costs fell by 4.4 percent. Combined with a PPS market basket increase of 4.9 percent for that year, this figure represents an 8.9 percent real decline in operating costs. A significant drop in Medicare discharges of 5.6 percent contributed to this occurrence. But even on a per-case basis, real Medicare operating costs declined by 3.4 percent. It seems likely, therefore, that much of the decline in operating costs represents hospital cost containment in response to PPS incentives. This general trend is consistent with the relatively slow growth in expenses observed in overall industry data for 1984.

Meanwhile, revenue during the first year of PPS rose substantially. PPS revenue per case grew 15.8 percent during this year, or 10.9 percentage points above the market basket rate of inflation.[11] Some of this increase reflected relatively generous first-year PPS payment rates, but much of it resulted from reported case-mix index change. The DRG cast-mix index increased about 6.6 percent during the first year of PPS. While some of this increase reflects greater resources used in patients care, a

Table 2–8. Change In Aggregate Medicare Operating Costs, Cases, and PPS Revenue for the First Three Years of PPS (In Percent)

Year	Total Medicare Operating Costs	PPS Revenue	Cases	Costs Per Case	Revenue Per Case	Market Basket*	Update Factor
TEFRA to PPS 1	-4.4%	9.3%	-5.6%	1.3%	15.8%	4.9%	4.7%
PPS 1 to PPS 2	3.0	3.3	-6.3	10.0	10.3	4.1	4.5
PPS 2 to PPS 3	6.5	-0.6	-3.6	10.4	3.0	2.9	0.5

* Market basket and update factors are for Federal fiscal years 1984 through 1986, whereas cost and revenue data are for hospital accounting years beginning during those Federal fiscal years. The update factor for fiscal year 1984 is the statutory adjustment required to set the initial PPS rates of market basket plus one, adjusted for budget neutrality. The 0.5 percent update factor for fiscal year 1986 did not take effect until seven months into the hospital accounting year.

SOURCE: ProPAC estimates based on Medicare Cost Report data for a cohort of 2,862 hospitals. Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York.

substantial portion resulted from more complete and accurate medical recordkeeping.

The combination of rapid revenue growth and real declines in operating costs led to a very high first-year PPS operating margin. The PPS operating margin is computed as the difference between PPS revenue and Medicare operating costs, expressed as a percent of PPS revenue. The PPS margin for all hospitals was 14.7 percent in the first year of PPS (see Table 2-9). Medicare operating margins were, by definition, zero under cost reimbursement, or slightly negative when cost-reimbursement limits were in effect.

During the second year of PPS an important change occurred. Revenue grew almost as much as during the first year, but costs grew just as fast. Both costs and revenue per case grew about 10 percent, or 6 percentage points more than inflation. Case-mix change continued to be an important factor. Only half the revenue increase resulted from the update factor. Because costs and revenue grew at about the same rate, there was little change in the aggregate PPS operating margin. It was 14.1 percent in the second year of PPS.

The aggregate PPS operating margin dropped substantially during the third year of PPS, a trend that has likely continued. During that year, operating costs per case continued to grow at a 10.4 percent rate, but revenue per case grew only 3.0 percent. Thus, the aggregate margin fell from 14.1 percent to 8.2 percent. The revenue increase reflected a relatively low update factor of 0.5 percent for fiscal year 1986 and a decline in the rate of case-mix index change.

PPS operating margins are expected to have declined since the third year of PPS. Although Medicare cost data are not yet available for these years, AHA data suggest that costs per case continued rising rapidly. If the 10 percent increase in costs per case persisted into the fourth year of PPS, the overall PPS operating margin will have declined to about 2 percent. Even if cost increases slowed to the level of inflation after that, the overall margin for fiscal year 1988 would approach zero.

Data on aggregate operating margins mask substantial variation among hospitals. While the overall first-year PPS operating margin was 14.7 percent, for example, 10 percent of hospitals had margins of −5.9 percent or lower, and another 10 percent had margins of 23.0 percent or more (see Table 2-10). By the third year of PPS, the bottom 10 percent of hospitals had margins of −18.5 percent or lower, while the top 10 percent had margins of 19.4 percent or more. Almost 36 percent of hospitals had negative margins in the third year, despite an overall positive margin of 8.2 percent. Chapter 3 includes a detailed discussion of variation in PPS operating margins.

Table 2–9. Aggregate Revenue and Costs Per Case and PPS Operating Margins for the First Three Years of PPS

Year	PPS Revenue Per Case	Medicare Operating Costs Per Case	PPS Margin (In Percent)
PPS 1	$3,500	$2,990	14.7
PPS 2	3,845	3,300	14.1
PPS 3	3,940	3,615	8.2

SOURCE: ProPAC estimates based on Medicare Cost Report data for a cohort of 3,321 hospitals. Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York.

Table 2–10. Distribution of PPS Operating Margins for the First Three Years of PPS

	PPS Operating Margin		
Percentiles	PPS 1	PPS 2	PPS 3
10th	-5.9	-7.2	-18.5
25th	3.3	2.6	-4.6
Median	11.3	10.9	5.1
75th	17.8	17.7	12.7
90th	23.0	24.2	19.4
Percent of hospitals with negative margins	17.8	18.8	35.9

SOURCE: ProPAC estimates based on Medicare Cost Report data for a cohort of 3,321 hospitals. Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York.

Sources of Cost Increases

Several factors have led to the rapidly increasing costs per case that are a major contributor to declining PPS margins. During a period of declining admissions such as hospitals have experienced since 1984, per-case costs would be expected to increase for two reasons. First, as admissions decline, the average patient admitted is likely to be sicker and costlier to treat. Second, hospital cost reductions are expected to lag admission declines. Hospitals are unable to make staffing cutbacks and other changes to reduce costs quickly. That is, certain costs, such as those for management information systems, are fixed in the short run.

Recent increases in Medicare operating costs per case do not appear to be caused only by admission declines, however. Decreases in Medicare inpatient admissions were similar during the first two years of PPS. Despite falling admissions, hospitals achieved a real decline in costs per case during the first year. By contrast, costs increased much faster than inflation during the second year. Moreover, while the decline in discharges slowed in the third year of PPS, costs per case continued to grow at the same rate. If the per-case cost increase were due solely to volume decline, real costs would be expected to grow more slowly by the third year.

One contributing factor to these cost increases may be changes in hospital behavior. During the early years of PPS, hospitals overall were in a strong financial position, partly because they held down costs during the first year. As a result, pressure imposed by PPS for further cost reductions may have lessened. Although hospitals can always increase margins by reducing costs under PPS, they may make trade-offs between maximizing margins and other goals associated with providing the most up-to-date medical care. In particular, hospitals may not have continued pressuring their medical staffs to eliminate using services of questionable value. They may also have been more receptive to medical staff requests to add new diagnostic and therapeutic capabilities.

OTHER MEASURES OF HOSPITAL FINANCIAL CONDITION

In addition to margins, hospital financial performance can be measured by other indicators. According to the Healthcare Financial Management Association's (HFMA) Financial Analysis Service (FAS), the hospital industry experienced unprecedented improvement in nearly all financial indicators for the period 1983 through 1985. In 1986, however, FAS reports a slight downturn in several key indicators and evidence of possible future decline in financial health.

HFMA Financial Analysis Service Trends[12]

After a three-year period of improvement, median operating margins fell to 3.0 percent in 1986, a decline of 16.6 percent from the prior year.[13] Despite this decline, operating margins were still well above 1983 levels, except for the lower 25th percentile of hospitals, which tend to be smaller and in rural areas.

Declining operating margins force other indicators of profitability down. Return on total assets (ROTA), which measures net income earned per dollar of investment and indicates how well an institution has used its funds, declined 5.2 percent in 1986. Ratio levels for 1986 still exceed those for 1983, however. Some financial experts believe that ROTA is a far more important financial indicator than operating margins. They assert that the relationship between profits and required investment, rather than the magnitude of profits, is critical.

Despite declining operating margins, liquidity continues to improve. Hospitals are progressively better able to meet financial obligations that will become due in the near future. The current ratio, a

measure of the relationship between the value of current assets per dollar of current liabilities, reached an all-time high in 1986. Further, days in patient accounts receivable, a measure of the average time to collect outstanding receivables, increased only slightly in 1986, following a marked increase in this ratio for the two prior years. But it is expected that days in accounts receivable may rise sharply in 1987 because of the elimination of Medicare's periodic interim payment (PIP) program.

As for financing fixed assets, the industry has grown more reliant on long-term debt. The fixed asset financing ratio, a measure of long-term debt to net fixed assets, continued its upward trend, increasing 4.5 percent in 1986. Hospitals' ability to repay debt declined in 1986, although their position was still better than in 1983. The debt service coverage ratio, a measure of the multiple by which principal and interest are covered by cash flow, declined 2.1 percent in 1986.

There is a strong positive relationship between large Medicare PPS margins and unprecedented growth in overall operating margins reported by FAS. This indicates that PPS contributed significantly to the industry's improved financial health when the system was first implemented. Since that time, FAS operating margins and other financial indicators have not declined as precipitously as PPS margins, however. This may, in part, result from less intense revenue constraints on the part of other payers. Average PPS margins could fall below zero in 1988. Since Medicare represents a large portion of hospital revenues, the decline in operating margins may have a pervasive effect on other indicators of overall financial condition in the future.

Hospital Credit Ratings

Recent trends in hospital credit ratings reflect the changing financial condition of the hospital industry. In 1987, Moody's Investor Service downgraded the credit ratings of about 75 percent of the long-term debt of hospital-management companies.[14] In the same year, Standard & Poor (S&P) downgraded its credit rating for 62 hospitals and upgraded only 10. This compares to S&P's downgrading of 70 and upgrading of 54 in 1986.[15] Of the 54 upgrades in 1986, however, 50 resulted from bond issues backed by the California Mortgage Insurance Program and were upgraded along with the state's rating.[16]

Analysts cite several reasons for declining ratings.[17] S&P points to the fact that hospitals continue to face increased competition, declining admissions, and restrictions imposed by PPS. Moody's attributes lower ratings to increased pressure on profit margins resulting from Medicare payment restrictions, price discounts, and higher wages. Further, Moody's predicts there will be no long-term improvement in these conditions.

CHANGES IN THE STRUCTURE OF THE HOSPITAL INDUSTRY AND HOSPITAL MANAGEMENT STRATEGIES

Until recently, most health care was provided by single entities like hospitals, physicians, clinics, and nursing homes. Today, faced with new sites of service delivery and market pressures, hospitals are revisiting their mission, structure, and management approach.

Acute hospital utilization has declined since the early 1980s due to changes in medical practice and shifts in the site of care for many services. While hospital occupancy increased slightly in 1987, rates remain well below pre-PPS levels (see Table 2-11). This increase is partly due to continued decline in the number of beds combined with stabilized inpatient length of stay. In response to recent declining inpatient utilization, some hospitals are converting unused capacity to outpatient department and ambulatory care services.

Hospital closures are increasing. According to a recent study, more hospitals closed in 1987 than in any previous year since 1980 (see Figure 2-5).[18] The 80 community and 16 specialty hospitals that closed represented a 15.7 percent increase over 1986. Closed beds for the year totaled 9,162; 64 percent were community and 34 percent specialty hospitals. This represents about 1 percent of total beds reported in 1986 (as noted in Table 2-11).

Of the community hospitals that closed, more than 76 percent had fewer than 100 beds. Community hospital closures were evenly divided between urban and rural locations. Rural hospitals have

Table 2-11. Change in Inpatient Hospital Occupancy Rates and Numbers of Beds, 1978-1987

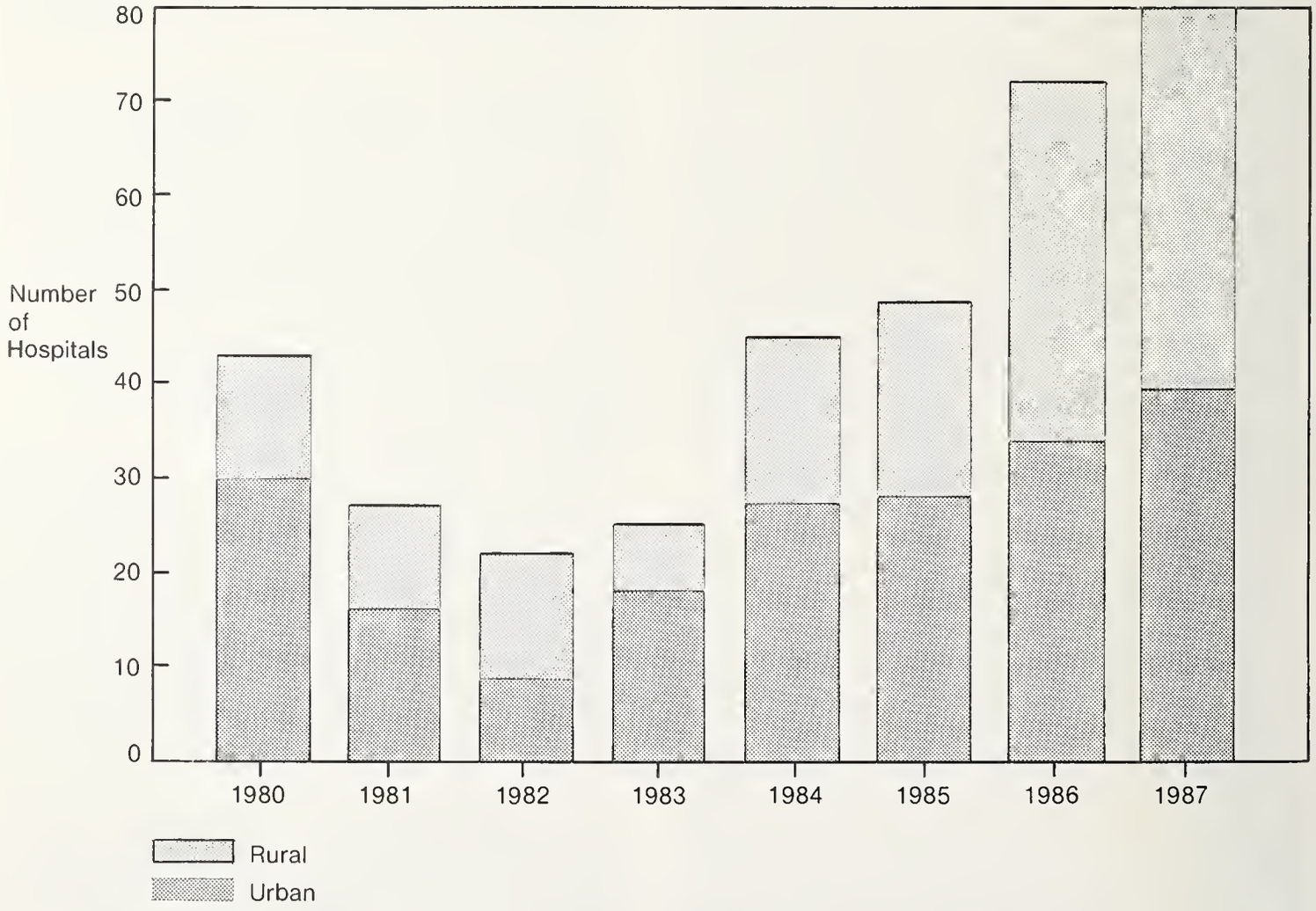
Year	Occupancy Rates	Percent Change	Number of Beds	Percent Change
1978	73.8%	-0.8%	954,001	0.9%
1979	74.5	1.0	959,269	0.6
1980	75.9	1.9	970,456	1.2
1981	75.8	-0.1	986,917	1.7
1982	74.6	-1.6	997,720	1.1
1983	72.2	-3.2	1,003,658	0.6
1984	66.6	-7.8	992,616	-1.1
1985	63.6	-4.5	974,559	-1.8
1986	63.4	-0.3	963,133	-1.2
1987	64.1	1.1	954,458	-0.9
Averages:				
1978-1983	74.5	-.5	978,670	1.0
1984-1987	64.4	-2.9	971,192	-1.3

SOURCE: American Hospital Association National Hospital Panel Survey.

accounted for an increasing share of total community closures in recent years. It is these hospitals that contribute principally to significant growth in overall closures. Small hospitals have dominated community closures since 1980. ProPAC analyses indicate the overall margins of small hospitals tend to be lower, although they vary widely. (Chapter 3 contains a detailed discussion of distributional differences in hospital margins.)

Investor-owned facilities represented the largest share of community hospitals to close, accounting for over 43 percent of these closures. This ownership group had represented less than one-third of closures in 1986. The increase in investor-owned closures indicates the ability of proprietary facilities to cease operations more quickly in response to a changing environment.[19]

Figure 2-5. Community Hospital Closures, 1980-1987



SOURCE: Ross Mullner, Ph.D., David Whiteis and David McNeil "More Hospitals Close in 1987," Center for Health Services Research, School of Public Health, University of Illinois at Chicago, February 22, 1988

Specialty hospital closures were also dominated by small hospitals. Eleven specialty hospitals that closed had fewer than 100 beds, yet these hospitals were predominantly in urban locations. In fact, 14 of the 16 specialty hospital closures occurred in urban areas. State and local government facilities represented the largest share, accounting for more than 43 percent of the specialty hospital closures.

Increases in hospital closures, combined with accelerated growth in the number of hospitals owned or managed by systems, indicate greater consolidation in the industry. Hospitals can consolidate horizontally or vertically. Horizontal integration occurs when hospitals merge, thus concentrating health care services in fewer firms. Vertical integration occurs when hospitals merge with separate suppliers into a single enterprise that provides various types of care. This strategy may involve the merger of hospitals with free-standing ambulatory care centers, long-term care facilities, clinical laboratories, or home health agencies.

Horizontal integration has accelerated since 1983.[20] For the period 1983 to 1986, the number of multihospital systems grew 10 percent, and the number of member hospitals grew 23 percent. Contrary to past trends, consolidation has not been dominated by large investor-owned corporations. PPS may be contributing to slower growth of large national hospital systems compared with their smaller counterparts. Growth of large systems may be more heavily dependent on capital financing considerations, which are diminished by PPS.

Vertical integration has also increased noticeably. Joint ventures, a partial merging of activities of separate producers, are the most prevalent example of this strategy in health care. Large multihospital systems attempting to expand vertically in the early 1980s met with disappointing results, however, and have cut back those ventures.

Hospitals are also diversifying by adding other services or product lines to existing inpatient care. Some of these changes are discussed in other sections of this report. It is unclear, however, whether hospitals are diversifying their product lines on the basis of individual DRG prices or at some other level.[21] Literature suggests that PPS has contributed to the increased use of management information systems that permit monitoring costs by DRGs. Further, PPS has encouraged the use of more elaborate cost accounting methods and systems. Such systems enable hospitals to price services more accurately, determine the financing of new products, conduct performance appraisals, assess staffing needs, and carry out feasibility studies.

The implementation of PPS and increased competition have led some hospitals to adopt product line management techniques. Such strategies enable hospitals to understand and improve, by service, the management of their costs, revenues, profitability, and quality. Little evidence is available, however, to determine whether hospitals are concentrating in any particular specialty areas or discontinuing services solely on the basis of financial considerations. Instead, the combination of services offered depends on the resources and financial support available to the hospital, health planning requirements, market preferences, and local competition.

CONCLUSIONS

One of the primary goals of PPS is to control Medicare inpatient hospital spending by offering hospitals incentives for increased productivity and efficiency. Evidence suggests that during the period preceding and immediately following system implementation, hospitals responded to cost-containment incentives. More recent data suggest that hospitals may not have sustained efforts to reduce the cost of inpatient care.

The pattern of initial response followed by a return to pre-PPS behavior is evident in several indicators. When PPS was introduced, for example, hospitals cut back employment levels substantially. Employment is once again increasing, largely because of increased outpatient activity. Similarly, growth in labor expenses per FTE declined considerably in the first two years of PPS, but is again on the rise. Recent increases reflect, in part, the continued shift to more highly skilled workers. Furthermore, between 1984 and 1985, capital costs grew at the slowest rate of increase since 1977. More recent data suggest, however, that capital spending is accelerating. Finally, although hospitals achieved reductions in intensity, or services per discharge, they were confined to the first two years of PPS. More recently, intensity is once

again increasing. Since the beginning of PPS, the decline in intermediate productivity has gradually slowed down. Nevertheless, the industry has not achieved absolute intermediate productivity gains under PPS.

During the first year of PPS, Medicare operating costs declined significantly, most likely in response to PPS cost-containment incentives. Revenue per case also rose dramatically, resulting in unprecedented operating margins for the hospital industry. Since that time, however, significant changes have occurred. Costs per case rose by 10 percent annually in the second and third year of PPS, while increases in revenue per case slowed. This resulted in a substantial drop in PPS operating margins in the third year of PPS. Such declines are likely to have continued.

The long-term consequences of PPS on hospital productivity and costs are uncertain. Payments to hospitals under PPS are much lower, compared with costs, than in the early years for which data are available. Additional time is needed to assess whether the pressure of tighter rates will evoke a behavioral response that slows increases in costs per case. More stable admission and length of stay trends may create a favorable environment for hospitals to respond to the cost escalation problem.

Notes to Chapter 2

1. American Hospital Association, *Hospital Statistics* (Chicago, IL: American Hospital Association, 1984 and 1987). FTE RNs are those employed by hospitals in both inpatient and outpatient settings.

2. The AHA considers all personnel working fewer than 35 hours per week as part-time. Each part-time employee is counted as .5 FTE in the survey. Many part-time employees may work more than 20 hours per week, however. As a result, labor expenses per FTE and average salary may be overstated.

3. Typically, it takes from one to three years to complete a major capital project. Capital costs associated with these projects are not recognized by Medicare until the construction is complete and the project contributes to patient care. Considering this lag, annual changes in depreciation expense reflect capital spending behavior of prior periods.

4. Adjusted admissions reflect inpatient days plus outpatient activity expressed in units equivalent to an inpatient day. The AHA adjusts outpatient visits by the ratio of outpatient revenue per visit to inpatient revenue per day. This adjustment is used to determine an outpatient visit level of effort equivalent to an inpatient day.

5. Judith D. Bentkover, Frank A. Sloan, Frank G. Feeley, et. al., "Hospital Capital and Operating Costs," *Advances in Health Economics and Health Services Research*, 5, 1984, 213-36.

6. Prospective Payment Assessment Commission, *Medicare Prospective Payment and the American Health Care System, Report to the Congress* (Washington, DC: ProPAC, February 1987)29-31.

7. *Assessing the Adequacy of Medicare Cost Report Data*, prepared by SysteMetrics/McGraw-Hill, Inc., under ProPAC contract No. T-47540316, January 20, 1988.

8. The observations on hospital labor productivity are based on data from the AHA Monitrend Reports. This analysis used the *Six-Month Summary Reports* for the period ending June 30 for 1980 through 1987. These reports reflect the experience of a self-selected group of hospitals that participate in the AHA's Hospital Administrative Survey. Statistics are calculated for individual hospital departments and then aggregated across all departments.

9. Ideally, productivity is based on precise measurement of changes in the hospital product that incorporate health outcome, service quantity and quality, and case-mix change. Such measures are currently unavailable. In their absence, the Commission has defined the patient discharge as the final product. In doing so, ProPAC recognizes that changes in the number and the quality of the services provided are not considered. To partially account for this omission, the Commission distinguishes between changes in intensity and changes in intermediate productivity. This distinction does not fully account for changes in the hospital product, although it permits evaluating product changes related to changes in intensity. For further discussion of these concepts, see ProPAC's *Technical Appendixes to the Report and Recommendations to the Secretary, U.S. Department of Health and Human Services*, 1987.

10. Inpatient laboratory and radiology intensity measures reflect average intensity changes in the following departments: diagnostic radiology, therapeutic radiology, nuclear medicine, cat scan, laboratory, blood bank, ECG, and EEG.

11. Revenue growth for the first year of PPS was computed by comparing PPS revenue for that year with TEFRA-year Medicare payments, excluding capital and direct medical education.

12. This section presents highlights from the Healthcare Financial Management Association's national ratio analysis service, Financial

Analysis Service, *Hospital Industry Financial Report 1982-1986* (Oakbrook, IL: HFMA, 1987).

13. (Total operating revenue minus operating expenses) divided by total operating revenue.

14. Kari Palm, "Market Pressures Prompt Downgrades for Providers," *Modern Healthcare* 18(4):49, January 29, 1988.

15. "Fast Facts in Health Business," *Health Business* 3(3):1F, January 22, 1988.

16. M. Traska, "Will Operating Margins Limit Access to Capital?" *Hospitals* 62(2):40, January 20, 1988.

17. Palm, "Market Pressures," 49.

18. Information on hospital closures was obtained from *More Hospitals Close in 1987,* by Ross Mullner, Ph.D., David Whiteis, and David McNeil, Center for Health Services Research, School of Public Health, University of Illinois at Chicago, February 1988. A revised version appeared in *Hospitals* 62(7):33-36, April 5, 1988.

19. *The Changing Structure of the Health Care Industry and the Influence of Medicare Prospective Payments,* prepared by Bernard Friedman, Ph.D., under ProPAC contract No. T-47538108, March 1988.

20. Information on horizontal and vertical integration was obtained from *The Changing Structure of the Health Care Industry.*

21. Information on hospital management information systems and product line management was obtained from *A Literature Review of Hospital Management Practices,* prepared by SysteMetrics/McGraw-Hill, Inc., under ProPac contract No. T-4750316, March 1988.

Chapter 3

PPS Hospital Payments

Chapter 3

PPS Hospital Payments

Payments to hospitals under the Medicare prospective payment system are expected to be about $43.1 billion in fiscal year 1988. These payments will be made to some 5,676 hospitals to cover the costs of an estimated 9.9 million Medicare inpatient stays (see Table 3-1). The total amount and the distribution of Medicare payments embody important policy issues with major consequences for hospitals and Medicare beneficiaries. The design of PPS and policy changes since system implementation have altered the distribution of payments to hospitals. ProPAC and others are continuing to assess the effects of payment redistributions and to study possible approaches for refinement.

This chapter first describes how PPS payments are distributed among hospitals. Payments for outlier cases and special adjustments for teaching hospitals and hospitals serving a disproportionate share of low-income patients are examined separately.

Next is an historical view of how PPS policy decisions have affected the distribution of Medicare payments to hospitals. In this analysis, the effects of policy decisions are isolated from other factors that influence total hospital payments. Policy decisions include update factors, the movement to national rates, and the addition of the disproportionate share adjustment. Other factors affecting payments include changes in the number of Medicare discharges.

Table 3–1. PPS Hospitals, Discharges, and Payments, Fiscal Year 1988

Hospitals	Discharges (in millions)	Payments* (in billions)
5,676	9.9	$43.1

* Includes beneficiary cost sharing.

SOURCES: ProPAC estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration, and the Congressional Budget Office.

The third section describes the role the DRG case-mix measurement system plays in distributing PPS payments to hospitals. Variation and changes over time in the DRG case-mix index (CMI) are examined. Also included is a discussion of how well the DRGs explain variation in the costs of treating patients.

The last section discusses the variation in PPS operating margins across hospitals. A discussion of overall trends in hospital operating margins appears in Chapter 2.

DISTRIBUTION OF PPS PAYMENTS TO HOSPITALS

Medicare inpatients and PPS payments are not distributed equally among hospitals (see Table 3-2). While roughly half of the PPS hospitals are designated as rural, for example, these hospitals account for only one-quarter of Medicare inpatient stays and less than one-fifth of PPS payments. Moreover, rural hospitals with fewer than 50 beds comprise almost a quarter of the total PPS hospitals, but only 5 percent of the discharges and 3 percent of total payments.

At the other extreme, one-quarter of PPS hospitals are located in large metropolitan areas. These hospitals account for almost 40 percent of all Medicare discharges and almost half of total PPS payments. The largest urban hospitals (405 beds or more), which comprise 7 percent of all hospitals, treat a quarter of the discharges and receive almost a third of all PPS payments. The 3 percent of hospitals classified as major teaching (those with a ratio of residents to beds of .25 or more) treat about 7 percent of Medicare inpatients and receive more than 10 percent of all PPS payments.

Regional variation occurs as well. To some extent, it results from a differing mix of urban and rural hospitals. For example, a majority of the hospitals in the West North Central states are

Table 3–2. Distribution of Hospitals, Discharges, and PPS Payments, by Hospital Type (In Percent)+

Hospital Type	Hospitals	Medicare Discharges	Total PPS Payments	Teaching Payments	Disproportionate Share Payments	Outlier Payments
All hospitals	100%	100%	100%	100%	100%	100%
Urban	51	75	83	96	96	90
Rural	49	25	17	4	4	10
MSA > 1 million	25	38	46	64	56	54
Other urban	25	37	38	31	40	36
Rural referral	3	4	4	2	*	2
Sole community	6	2	2	*	*	*
Other rural	41	19	12	3	4	8
Major teaching	3	7	11	51	27	18
Other teaching	15	32	37	49	37	43
Non-teaching	82	61	52	0	36	40
Disproportionate share:						
MSA > 1 million	9	13	17	35	56	25
Other urban	9	14	16	19	40	18
Rural	5	2	2	2	4	3
Non-disproportionate share	78	71	65	43	0	54
New England	5	6	7	10	3	10
Middle Atlantic	9	14	17	26	21	32
South Atlantic	14	16	15	12	15	15
East North Central	16	19	19	23	15	14
East South Central	9	9	7	3	8	5
West North Central	14	9	8	7	4	5
West South Central	15	11	9	5	11	6
Mountain	7	4	4	3	2	2
Pacific	12	12	15	12	23	10
Urban <100 beds	12	5	4	*	1	3
Urban 100–249 beds	19	21	21	9	27	19
Urban 250–404 beds	11	24	26	23	29	26
Urban 405–684 beds	6	19	23	41	27	29
Urban 685+ beds	1	6	8	23	10	13
Rural <50 beds	23	5	3	*	*	1
Rural 50–99 beds	15	7	4	*	1	1
Rural 100–169 beds	7	7	4	*	1	2
Rural 170+ beds	4	7	5	4	3	6
Voluntary	55	71	73	76	67	75
Proprietary	15	11	10	2	8	10
Urban government	8	9	10	18	21	10
Rural government	22	9	6	2	3	4

* =less than 0.5 percent.

+ PPS payments simulated using OBRA 1987 policy rules under a fully phased-in system. Columns may not add to 100 due to rounding.

SOURCE: ProPAC estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

located in rural areas. While this region includes 14 percent of all hospitals, they treat only 9 percent of patients and receive 8 percent of total payments.

A number of factors underlie variation in PPS payments. These include differences in payment policies as well as the number of Medicare discharges and the DRG case-mix index. The policies were developed to account for observed variation in hospital costs. Policies such as separate urban and rural rates, the area wage adjustment, and special payment rules for hospitals designated as Sole Community Hospitals (SCHs) affect variation in the basic PPS payment rate hospitals receive. Additional payments under the teaching and disproportionate share adjustments and for outlier cases also contribute to variation in overall PPS payments. The distribution of these additional payments is discussed below.

Payments Under the Teaching and Disproportionate Share Adjustments

If PPS were fully phased-in during fiscal year 1988, 6.3 percent of total payments, or about $2.7 billion, would be paid under the indirect teaching and disproportionate share adjustments.[1] The teaching adjustment would account for $1.8 billion and the disproportionate share adjustment, about $900 million. These adjustments are intended to compensate hospitals for the additional costs associated with training physicians and treating low-income patients, respectively. To some extent, these additional payments also compensate hospitals for case-mix complexity that is not captured by the DRGs.

Urban hospitals receive the bulk of the teaching and disproportionate share payments (see Tables 3-2 and 3-3). Major teaching hospitals receive

Table 3–3. Distribution of Payments Under Fully Phased–In PPS Rates, By Payment Type (In Percent)*

Hospital Type	Basic Payments	Teaching Payments	Disproportionate Share Payments	Outlier Payments
All hospitals	88.0%	4.2%	2.1%	5.7%
Urban	86.6	4.8	2.4	6.1
Rural	94.9	1.1	0.5	3.5
MSA > 1 million	84.9	5.9	2.5	6.6
Other urban	88.8	3.5	2.2	5.5
Rural referral	94.5	1.9	0.1	3.6
Sole community	99.3	0.1	0.1	0.6
Other rural	94.5	1.0	0.7	3.8
Major teaching	67.3	18.8	5.0	8.8
Other teaching	85.7	5.6	2.1	6.6
Non-teaching	94.2	0.0	1.4	4.4
Disproportionate share:				
MSA > 1 million	76.5	8.5	6.7	8.3
Other urban	82.9	5.2	5.3	6.5
Rural	81.4	5.0	5.3	8.4
Non-disproportionate share	92.5	2.8	0.0	4.7
New England	83.7	6.5	0.8	9.0
Middle Atlantic	79.7	6.6	2.6	11.0
South Atlantic	88.8	3.3	2.1	5.9
East North Central	89.0	5.0	1.6	4.4
East South Central	91.4	2.0	2.4	4.2
West North Central	92.3	3.4	0.9	3.3
West South Central	91.8	2.3	2.4	3.5
Mountain	93.1	3.0	0.8	3.2
Pacific	89.5	3.5	3.3	3.8
Urban <100 beds	95.5	0.3	0.7	3.5
Urban 100–249 beds	90.6	1.7	2.6	5.1
Urban 250–404 beds	88.2	3.7	2.4	5.8
Urban 405–684 beds	83.1	7.4	2.4	7.0
Urban 685+ beds	77.3	11.4	2.6	8.8
Rural <50 beds	98.1	0.2	0.4	1.3
Rural 50–99 beds	97.7	0.0	0.3	2.0
Rural 100–169 beds	96.8	0.1	0.2	2.9
Rural 170+ beds	89.7	3.2	1.1	6.1
Voluntary	87.9	4.4	1.9	5.8
Proprietary	92.4	0.6	1.6	5.4
Urban government	82.0	7.6	4.5	5.8
Rural government	94.1	1.3	1.0	3.5

* PPS payments simulated using OBRA 1987 policy rules under a fully phased-in system. Rows may not add to 100 due to rounding.

SOURCE: ProPAC estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

about half the teaching payments and one-quarter of the disproportionate share payments. The teaching and disproportionate share adjustments account for almost one-quarter of the total PPS payments to these facilities.

A relatively large share of teaching payments goes to hospitals in the northeastern part of the country, and a relatively small share to hospitals in the south. Pacific hospitals receive almost a quarter of all disproportionate share payments. Another 21 percent goes to hospitals in the Middle Atlantic division. About 9 percent of PPS payments to hospitals in this region come from the two payment adjustments, compared with about 6 percent for hospitals in the rest of the country.

Hospitals receiving teaching and disproportionate share adjustments overlap considerably. About 56 percent of teaching payments go to hospitals that receive disproportionate share adjustments. Similarly, 64 percent of the disproportionate share payments go to teaching hospitals.

Outlier Payments

Under a fully phased-in PPS system, payments for outlier cases would be expected to total about 5 percent, or $2.2 billion in fiscal year 1988 dollars. Outlier payments are intended to be made for cases that are unusually costly. They are not intended to cover the entire cost of these cases, however. ProPAC simulated the average loss for an outlier case to be about $7,200 in 1986 dollars.

Urban hospitals and large hospitals tend to have a higher proportion of outlier payments than rural hospitals and small hospitals (see Table 3-3). Outlier payments, for example, comprise almost 9 percent of total payments to urban hospitals with 685 beds or more, and only slightly more than 1 percent for rural hospitals with fewer than 50 beds.

The proportion of payments for outliers is not a direct indicator of financial benefits or losses. Although hospitals with a high proportion of outlier payments receive compensation for costly cases, these cases may also cause substantial financial losses. At the same time, a low proportion of outlier payments may not indicate protection from losses. Small rural hospitals, for example, may have a relatively low proportion of outlier cases, but a few cases may cause major financial hardships.

Regional variation in outlier payments is striking. Hospitals in the Middle Atlantic states are estimated to receive almost one-third of all outlier payments, primarily because of very long lengths of stay in New York hospitals (see Table 3-2). This estimate may be overstated because it reflects patient information for fiscal year 1986, which was the first year New York hospitals participated in Medicare PPS. Under PPS, lengths of stay in New York could shorten as they did in the rest of the country. No significant length-of-stay decline has yet occurred in New York hospitals, however. Moreover, it would take extraordinary declines in length of stay to reduce the unusually large share of outlier payments going to New York hospitals. To a lesser degree, the same situation applies in New England, because Massachusetts hospitals also began PPS in fiscal year 1986.

PPS outlier cases fall into three categories. Day outlier cases qualify for extra payment because they have unusually long lengths of stay. Cost outliers are cases that do not meet the length of stay criterion but qualify for extra payment because they are unusually costly. Dual outliers are cases that would qualify as either day or cost outliers. Under PPS policy, these cases are paid as day outliers.

Day and dual outliers account for 92 percent of all outlier payments (see Table 3-4). Thus, current policy places heavy emphasis on length of stay in determining outlier payment amounts.

The split between day and cost outlier payments varies greatly across hospital groups. For example, in the New England and Middle Atlantic regions, cost outlier payments are 1 to 2 percent of total outlier payments, compared with 20 percent or more in the Mountain and Pacific regions.

Systematic differences in outlier categories across hospital groups may reflect variation in patient mix or in practice patterns. Teaching hospitals, for example, may have more outlier cases because they treat more severely ill patients. An historical tendency toward relatively short lengths of stay may explain the lower-than-average proportion of day outliers in the Pacific states.

Table 3–4. Total Outlier Payments for Each Outlier Category, by Hospital Type (In Percent)*

Hospital Type	Cost-only	Day-only	Dual
All hospitals	8%	46%	46%
Urban	7	46	47
Rural	13	46	41
MSA > 1 million	8	45	48
Other urban	7	48	45
Rural referral	8	40	52
Sole community	19	43	38
Other rural	15	49	36
Major teaching	2	51	46
Other teaching	5	47	48
Non-teaching	13	43	44
Disproportionate share:			
MSA > 1 million	5	47	47
Other urban	5	54	41
Rural	27	37	36
Non-disproportionate share	10	43	47
New England	1	61	38
Middle Atlantic	2	61	37
South Atlantic	12	33	55
East North Central	6	39	54
East South Central	13	35	52
West North Central	11	38	50
West South Central	18	32	50
Mountain	24	22	54
Pacific	20	29	51
Urban <100 beds	18	49	33
Urban 100-249 beds	12	44	44
Urban 250-404 beds	8	44	48
Urban 405-684 beds	6	47	48
Urban 685+ beds	2	51	47
Rural <50 beds	10	66	24
Rural 50-99 beds	19	47	34
Rural 100-169 beds	18	43	39
Rural 170+ beds	9	45	46
Voluntary	6	48	47
Proprietary	31	24	45
Urban government	6	48	46
Rural government	12	47	41

* Payments are estimated using OBRA 1987 payment rules under a fully phased-in system. Rows may not add to 100 due to rounding.

SOURCE: ProPAC estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

ProPAC has recommended changes in outlier policy that would emphasize costs rather than length of stay in determining outlier payments. The recommended changes and their expected effects are discussed in detail in the Commission's *Report and Recommendations to the Secretary, U.S. Department of Health and Human Services*, March 1988.

POLICY DECISIONS AND THE DISTRIBUTION OF PPS PAYMENTS

Since the implementation of PPS, the distribution of Medicare payments to hospitals has been altered. Medicare payments to hospitals have always been unevenly distributed because of variation in hospital characteristics. Small rural hospitals, for example, have always received a lesser share of payments because they have had fewer discharges and lower costs per case. But the method of payment based on average rates used under PPS has changed the distribution of payments.

Some redistribution has resulted from changes in hospital behavior, but much is attributable to policy decisions. Certain policy decisions—most notably the transition to national average rates—were part of the original design of PPS. Others were legislated later. These include reductions in teaching hospital payments; the addition of a disproportionate share adjustment; and separate update factors for rual hospitals, hospitals in large urban areas, and other urban hospitals. Some legislated changes were intended to mitigate the distributional effects of the original design of PPS.

Finally, some payment distribution changes result from regulations that update elements of the system using new data. These include changes in the area wage index and outlier thresholds.

Payment Changes for All Hospitals

The update factor and other policy decisions through the first five years of PPS increased per-case PPS payments by about 11.0 percent (see Table 3-5). Over half this increase occurred between the first and second years of PPS. During the five-year period, the PPS market basket rose 15.7 percent.

The 11.0 percent policy-related payment increase exceeds the 7.8 percent cumulative PPS update factor. This occurred primarily because the transition from hospital-specific to national rates inadvertently led to an increase in payments to hospitals. The national (and regional) rates were computed using unaudited data, whereas the hospital-specific rates were based on audited data. Initially, payments based on fully Federal rates would have been about 4 percent higher than payments based on hospital-specific rates.[2]

Table 3–5. Effects of PPS Update Factors and Other Policies on Per-Case PPS Payments to Hospitals (In Percent Change)[a]

Hospital Type	Payment Policy Years 1984[b]	1985	1986[c]	1987	1988[d]	Total	Total with Case-mix Change[e]
PPS Market Basket		4.1%	2.9%	3.4%	4.5%	15.7%	
PPS Update Factor		4.5	0.5	1.15	1.5	7.8	
All hospitals	0.7%	5.9%	0.9%	0.7%	2.4%	11.0%	31.5%
Urban	0.9	5.9	1.0	0.4	2.1	10.6	32.5
Rural	0.1	5.5	0.5	2.2	4.3	13.1	28.2
MSA > 1 million	0.0	4.8	0.8	-0.6	1.2	6.3	27.3
Other urban	1.9	7.3	1.3	1.7	3.1	16.1	39.1
Rural referral	-2.3	5.6	0.5	1.8	3.2	8.8	21.3
Sole community	3.4	8.7	0.9	2.4	3.4	20.1	37.8
Other rural	-0.6	4.6	0.3	2.3	4.7	11.6	26.1
Major teaching	1.9	7.2	-2.3	0.2	1.3	8.4	33.6
Other teaching	0.7	5.7	0.8	0.2	1.5	9.2	32.6
Non-teaching	0.6	5.7	1.6	1.2	3.3	12.8	31.1
Disproportionate share:							
MSA > 1 million	-0.5	4.2	1.8	-0.3	2.7	8.0	28.6
Other urban	1.5	7.4	2.3	2.4	4.4	19.1	43.8
Rural	-1.5	3.6	1.1	1.2	2.4	6.9	18.9
Non-disproportionate share	0.9	6.0	0.4	0.6	1.9	10.1	29.9
New England	2.7	7.5	0.8	0.8	2.0	14.5	34.1
Middle Atlantic	0.8	6.3	-0.9	1.9	5.6	14.3	30.8
South Atlantic	1.5	6.8	0.7	1.1	2.6	13.2	33.2
East North Central	1.4	5.9	0.3	-0.3	-1.2	6.1	23.0
East South Central	0.1	6.7	1.1	1.8	5.8	16.4	34.0
West North Central	-0.3	4.8	0.2	0.9	2.0	7.6	32.3
West South Central	-0.2	5.5	0.8	0.6	2.4	9.4	35.0
Mountain	-0.1	5.8	0.1	1.1	2.7	9.8	31.6
Pacific	0.4	4.7	3.6	-0.4	2.3	11.1	31.2
Urban <100 beds	2.3	7.9	2.1	2.4	4.5	20.6	37.8
Urban 100-249 beds	0.6	5.6	1.9	0.6	2.8	12.0	30.9
Urban 250-404 beds	0.7	5.6	1.5	0.2	2.0	10.4	31.4
Urban 405-684 beds	1.2	6.3	0.3	0.3	1.6	9.9	35.3
Urban 685+ beds	0.6	5.7	-1.3	-0.3	0.3	5.0	33.2
Rural <50 beds	1.6	7.3	1.1	4.5	7.6	24.0	35.8
Rural 50-99 beds	-0.4	5.1	0.7	2.7	5.5	14.1	27.9
Rural 100-169 beds	-0.3	4.9	0.6	1.9	4.0	11.6	27.1
Rural 170+ beds	0.2	5.6	-0.2	1.1	2.0	8.9	26.0
Voluntary	0.6	5.7	0.9	0.4	1.9	9.9	30.9
Proprietary	0.5	5.4	0.8	0.4	3.4	10.8	30.6
Urban government	2.5	7.8	1.2	1.6	3.9	18.1	39.9
Rural government	-0.2	6.0	0.6	3.4	5.1	15.8	30.8

a Figures are not estimates of actual changes in fiscal year PPS hospital payments. Payments are simulated to isolate the effects of changes in PPS policies during the first five years of PPS. The effects on payment of changes in length of stay and volume are not included. Except for the last column, case-mix index change is also excluded. New York and Massachusetts are included in 1987 and 1988 columns only.

b 1984 column shows effects of changing from fully hospital-specific payments to first-year PPS blended rates. Other aspects of the change from TEFRA to PPS, including the total increase in per-case payments, are not included.

c 1986 column simulates payments under a full year of COBRA policies, which did not take effect until May 1986. The 1.0 percent Gramm-Rudman payment reduction in effect from March 1, 1986 through September 30, 1986 is not included.

d 1988 column simulates a full year of OBRA 1987 policies, which did not take effect until April 1988. Also included is the teaching reduction, which will not actually be implemented until fiscal year 1989.

e The last column adjusts the total to include estimated case-weighted CMI change from 1983 to 1988. Variation in CMI change across hospital groups was measured from 1981 to 1986. An across-the-board adjustment was made for other years.

SOURCE: ProPAC simulations based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

In each year, payment increases resulting from policy decisions have differed from the update factor. As discussed below, these increases are not equivalent to increases in total PPS payments. The major policies affecting payment increases shown in Table 3-5 are:

- 1984: The 0.7 percent increase is the consequence only of the movement from fully hospital-specific rates to a blend of 75 percent hospital-specific and 25 percent regional average rates. The allowed rate of increase from 1983 to 1984 included in the initial PPS rates and other aspects of the change to PPS are not taken into account.

- 1985: The 5.9 percent policy-related payment increase resulted from the update factor plus the transition to national rates.

- 1986: The transition was delayed but the policy-related payment increase was 0.9 percent. This resulted from a 0.5 percent update factor and changes in the outlier thresholds to reflect shorter lengths of stay occurring under PPS. Teaching payments were reduced, and the disproportionate share adjustment was added.

- 1987: The 0.7 percent policy-related payment increase was less than the 1.15 percent update factor. The relatively low increase reflects the required reduction in the standardized amounts to pay for the disproportionate share adjustment. While disproportionate share payments began in 1986, the reduction to the standardized amounts was not applied until 1987.

- 1988: The 2.4 percent policy-related payment increase exceeds the 1.5 percent average update factor. Separate updates were given to hospitals in rural areas and in large urban areas. In addition to completion of the transition to Federal rates, hospitals were guaranteed the higher of fully national rates or a blend of regional and national rates. Furthermore, the ceiling on disproportionate share payments for certain hospitals was lifted.

The percentage changes in Table 3-5 are not estimates of changes in overall PPS outlays. Payments were simulated under the policies in effect during the first five years of PPS, keeping case mix, volume, and length of stay constant at their fiscal year 1986 levels. Year-to-year changes in outlier payments resulting from changes in length of stay are not captured because each year's outlier rules were applied to fiscal year 1986 cases. Moreover, although the PPS system was phased-in by hospital accounting year, the simulations treat all hospitals as if their accounting years coincided with the Federal fiscal year. This is the best method for comparing the effects of policy decisions on hospitals, but it is inappropriate for estimating annual Federal outlays.

Other simplifying assumptions were made as well. While legislative changes for fiscal years 1986 and 1988 were not implemented at the beginning of the fiscal year, payments were simulated as if they were in effect for the entire year. The across-the-board payment reductions occurring during these years under the Gramm-Rudman-Hollings deficit reduction legislation are excluded. The combination of assumptions probably overstates payments slightly, but does not distort general conclusions. Information on overall trends in PPS spending is included in Chapter 2.

Effects of Overall Case-Mix Index Change

Over the first five years of PPS, case-mix index change led to payment increases almost double those resulting from all policy decisions combined, including the update factors. When the effects of CMI change and policy decisions are combined, the cumulative increase in per-case payments for the first five years of PPS is 31.5 percent, compared with 11.0 percent for policy decisions alone. To some extent, update factors below the market basket inflation rate have reflected the large increases in revenue from CMI change that occurred during the first few years of PPS. A detailed analysis of trends in case-mix index change appears later in this chapter.

Payment Changes by Hospital Type

Policy decisions enacted during the first five years of PPS have redistributed PPS Medicare payments toward rural hospitals, particularly rural referral centers. Urban hospitals located in Metropolitan Statistical Areas (MSAs) with fewer than 1 million people, smaller hospitals, and non-teaching hospitals have also benefited from policy decisions relative to other hospitals. Many of these groups

tend to gain from the transition to national rates because they had relatively low historical costs.

Alternatively, larger hospitals, especially those in large urban areas and major teaching hospitals, received relatively small per-case payment increases from policy decisions. Many of these groups tend to lose payments under national rates. In addition, teaching hospital payments were reduced by two separate policy decisions to lower payments for the indirect teaching adjustment. The reductions were based on judgments that the original teaching adjustment was too high. The lowering of the teaching adjustment contributes to the finding that, taken alone, policies enacted in 1986 reduce per-case payments to major teaching and large urban hospitals.

Disproportionate share hospitals benefited from policy decisions when compared with other hospitals. Disproportionate share hospitals in small urban areas received a 19.1 percent cumulative increase in per-case payments from policy decisions, compared with 16.1 percent for all hospitals in small urban areas. Both of these increases were higher than the 11.0 percent overall level. Hospitals in large urban areas (1 million or more people) did relatively poorly under PPS policies, with a 6.3 percent increase. But disproportionate share hospitals in large urban areas fared better, receiving a 8.0 percent cumulative increase from policy decisions.

Certain regional differences are dramatic. Increases in per-case payment resulting from policy decisions were only 6.1 percent in the East North Central region—slightly more than half the increase for hospitals overall. In fact, policy decisions taking effect since 1985 lowered per-case payments to these hospitals. Alternatively, cumulative policy decisions increased per-case payments to East South Central hospitals by 16.4 percent.

Hospitals within each group do not all have the same experience. Policy decisions for fiscal year 1988, for example, increased per-case payments for hospitals in small urban areas by 3.1 percent, compared with 2.4 percent for all hospitals. But almost 15 percent of these hospitals had increases exceeding 10 percent, and about 20 percent had decreases.

Effects of Variation in Case-Mix Index Change

Policy decisions tended to benefit hospitals with the least gain in payment from CMI change.[3] For example, with CMI change included, payments for urban hospitals grew faster than payments for rural hospitals—a reversal of the pattern seen when only policy decisions are considered. Payments for non-teaching hospitals grew faster than payments for teaching hospitals when policy decisions are considered alone. The opposite is true when CMI change is included, but the differential between the groups is smaller.

When the effects of policy decisions and CMI change are combined, all regions had similar payment increases, except the East North Central region. While the cumulative total for other regions ranges from 30.8 percent to 35.0 percent, the increase for East North Central hospitals was only 23.0 percent. In addition to benefitting least from PPS policies, East North Central hospitals had relatively small CMI increases.

The smallest hospitals in both urban and rural groups have the largest increases in payments counting the effects of policy decisions alone or combining them with CMI change. The variation in payment changes is smaller when CMI change is included, however. For example, the payment increases among urban bed-size categories range from 5.0 to 20.6 percent counting policy decisions, and from 30.9 to 37.8 percent when case-mix change is included. Again, these figures are not estimates of actual payment change because of certain simplifying assumptions. They are, however, a reasonable representation of relative payment changes for different hospital groups.

DRG CASE MIX AND THE DISTRIBUTION OF PPS PAYMENTS

A hospital's payment under PPS largely depends on the mix of DRGs assigned to its cases. Cases classified in higher-weighted DRGs generate higher payments under PPS; conversely, cases in lower-weighted DRGs generate lower payments. Each hospital's case-mix index reflects the hospital's overall mix of cases across DRGs. Changes in a hospital's CMI, therefore, represent changes in payments. For example, a hospital's case mix may

shift to include relatively more higher-weighted DRGs and fewer lower-weighted DRGs. In this case, the hospital's CMI, and hence average Medicare payment per case, would increase. Thus, changes in the mix of patients treated by hospitals directly affect payments.

Modifications to the DRG classifications can also affect hospital payments. Several such refinements have been implemented under PPS. These changes were intended to reduce the observed variation in resource use within DRGs. The effect of these modifications on hospital payments has not been clearly documented. Nevertheless, recent evidence suggests that refinements to the DRGs probably do not have important effects on the distribution of hospital payments.

Case-Mix Index Change

The Medicare CMI measures the costliness of a hospital's Medicare patient mix relative to Medicare patients treated in all hospitals. The index is based on the diagnosis-related group of each patient and the weight that Medicare has assigned to each DRG. This weight reflects the average resource use for cases in the DRG relative to other DRGs. An individual hospital's CMI is the average DRG weight of its mix of patients.

The CMI of the average hospital has grown steadily since the implementation of PPS, as shown in Table 3-6. It was 1.000 in fiscal year 1981, 1.059 in fiscal year 1984, 1.091 in fiscal year 1985, and 1.114 in fiscal year 1986. PPS payments are largely based on the weights assigned to the DRGs. CMI growth, therefore, has resulted in increased hospital payments under PPS, as discussed previously.

Explanations for CMI Growth—Two major factors have caused the observed increase in the CMI. First, there have been substantial changes in Medicare admissions and treatments. These can be attributed to shifts in the site of service delivery, changes in the type of patients treated, and other factors. The average DRG weight for Medicare discharges, for example, has risen as more patients in lower-weighted DRGs are shifted out of the inpatient setting and treated on an ambulatory basis. This was particularly important in explaining the CMI increase from 1981 to 1984.

Changes in medical practice patterns also contributed to the CMI increase. As medical technology diffuses, more patients are being treated with resource-intensive procedures. For example, increased incidence of total hip replacements has contributed to higher CMIs by raising the proportion of patients in higher-weighted DRGs. Growth in coronary artery bypass surgery, particularly combined with cardiac catheterization during the hospital stay, has similarly increased CMIs.

The second major factor contributing to CMI growth has been significant improvements in hospital medical record reporting and coding practices. More complete and accurate coding, or upcoding, has led to the classification of a greater proportion of patients into higher-weighted DRGs. The increases in the CMI resulting from coding changes, however, do not reflect an actual increase in resource use.

Upcoding was anticipated as a consequence of the incentives of PPS. Coding-related CMI increases, however, would be expected to decline eventually. A hospital's ability to improve diagnostic and procedure information reported on the medical record probably is limited. To the extent that DRG classifications are changed, however, upcoding will continue. For example, the recent elimination of "age greater than 69" as a factor in DRG assignment could change coding practices. Hospitals will have a greater incentive to report complications and comorbidities for patients age 70 and older to assure their classification in the higher-weighted DRG. The extent to which hospitals can and will respond to this incentive, however, is uncertain.

CMI Across Hospital Types—CMIs differ significantly across hospital types. For example, the average urban hospital had a CMI of 1.183 in fiscal year 1986 compared with 1.044 for the average rural hospital (see Table 3-6). The average major teaching hospital had a CMI of 1.315, compared with 1.083 for the average non-teaching hospital.

In general, the hospital groups with relatively high CMIs also experienced the greatest CMI growth over the entire period. For example, the CMI of the average urban hospital increased 2.6 percent from 1985 to 1986, whereas the CMI of

Table 3–6. Changes in Average Case-Mix Index*

Hospital Type	Average Case-Mix Index				Percent Change (1981–1984)	Percent Change (1984–1985)	Percent Change (1985–1986)
	1981	1984	1985	1986			
All hospitals	1.000	1.059	1.091	1.114	5.9%	3.1%	2.0%
Urban	1.042	1.112	1.154	1.183	6.8	3.7	2.6
Rural	0.959	1.005	1.029	1.044	4.8	2.4	1.4
MSA > 1 million	1.051	1.121	1.163	1.193	6.7	3.7	2.6
Other urban	1.033	1.103	1.145	1.174	6.7	3.8	2.6
Rural referral	1.052	1.110	1.151	1.175	5.5	3.7	2.1
Sole community	0.961	1.003	1.027	1.030	4.4	2.4	0.3
Other rural	0.951	0.998	1.020	1.036	4.9	2.2	1.5
Major teaching	1.126	1.221	1.278	1.315	8.4	4.6	2.9
Other teaching	1.075	1.160	1.210	1.247	7.9	4.3	3.0
Non-teaching	0.981	1.035	1.064	1.083	5.6	2.8	1.8
Disproportionate share:							
MSA > 1 million	1.064	1.135	1.176	1.202	6.7	3.6	2.2
Other urban	1.041	1.124	1.167	1.192	8.0	3.9	2.1
Rural	0.927	0.976	0.984	0.991	5.3	0.8	0.7
Non-disproportionate share	0.993	1.048	1.081	1.103	5.6	3.1	2.1
New England	1.041	1.094	1.114	1.147	5.0	1.9	2.9
Middle Atlantic	1.062	1.090	1.124	1.144	2.6	3.2	1.8
South Atlantic	0.999	1.065	1.090	1.116	6.6	2.3	2.4
East North Central	1.022	1.071	1.104	1.129	4.8	3.1	2.3
East South Central	0.962	1.009	1.035	1.044	4.9	2.6	0.9
West North Central	0.972	1.041	1.077	1.096	7.1	3.5	1.8
West South Central	0.950	1.027	1.060	1.088	8.1	3.1	2.7
Mountain	0.997	1.052	1.086	1.101	5.5	3.2	1.4
Pacific	1.054	1.114	1.158	1.178	5.8	4.0	1.7
Urban <100 beds	0.972	1.020	1.043	1.064	4.9	2.3	2.0
Urban 100–249 beds	1.033	1.102	1.142	1.169	6.7	3.6	2.3
Urban 250–404 beds	1.074	1.157	1.208	1.244	7.8	4.5	3.0
Urban 405–684 beds	1.116	1.224	1.288	1.331	9.6	5.3	3.3
Urban 685+ beds	1.128	1.273	1.326	1.378	12.8	4.2	3.9
Rural <50 beds	0.936	0.973	0.992	1.000	3.9	1.9	0.8
Rural 50–99 beds	0.959	1.013	1.035	1.051	5.6	2.2	1.5
Rural 100–169 beds	0.987	1.043	1.075	1.099	5.7	3.1	2.2
Rural 170+ beds	1.026	1.086	1.125	1.154	5.9	3.6	2.5
Voluntary	1.021	1.085	1.121	1.145	6.2	3.3	2.2
Proprietary	0.982	1.044	1.083	1.108	6.3	3.7	2.3
Urban government	1.029	1.093	1.127	1.152	6.2	3.1	2.2
Rural government	0.945	0.992	1.012	1.026	5.0	2.0	1.4

* Index represents average hospital case-mix index, not weight of the average discharge in the group. Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York, which were not on PPS during this period.

SOURCE: ProPAC estimates using data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

the average rural hospital increased only 1.4 percent.

These data are not adequate to separate the amount of CMI change into different components. Nor can the data explain the reasons for different levels of change across hospital types. Certain hospitals may have had a more rapid change in patient mix and treatment patterns, causing greater CMI change than the average. In addition, certain groups of hospitals may have been able to respond more effectively and rapidly to PPS by changing their reporting and coding practices.

Data on hospitals originally waived from PPS indicate that at least a portion of the CMI increase is attributable to the initiation of PPS. Hospitals in New York and Massachusetts came under PPS in fiscal year 1986. In 1981, the average hospital CMI in New York was 1.054; in Massachusetts it was 1.057. Both were significantly above the average for all hospitals. The average hospital in both states experienced slower CMI growth from 1981 to 1985 than hospitals under PPS. But hospitals in both states experienced substantial CMI growth from 1985 to 1986. In 1986, the average hospital CMI in New York was 1.135 and in Massachusetts

it was 1.150. The CMI change in both states suggests that national CMI growth has been, at least in part, a response to the incentives of PPS.

DRG Improvements and the Distribution of PPS Payments

Since the implementation of PPS, a significant amount of research has focused on the adequacy of DRGs to measure hospital case mix. The findings from these analyses have led to several modifications to the DRG system. In general, these changes have resulted in more appropriate DRG assignments and more accurate DRG weights. Thus, on the DRG or patient level, the refinements have improved payment equity.

The impact of DRG improvements on the distribution of payments across hospitals, however, is much smaller. Previous ProPAC analyses have revealed that even broad classification changes that affect many DRGs, such as eliminating the use of age, have minimal effects on average hospital payments. In the study reported here, ProPAC analyzed how well DRGs account for hospital-level variation in resource use.

The results of this analysis show that DRGs capture significant variation in resource use that is related to patient medical condition or treatment. They also suggest that, given the present state of knowledge, future improvements to the DRG classifications using currently collected data are unlikely to have a major effect on the distribution of hospital payments. Payments to some hospitals may be substantially changed, however. Moreover, future DRG improvements may be desirable for other reasons—for example, to maintain accurate DRG definitions and weights.

Table 3-7 compares actual hospital costs to costs estimated using four different case-mix measurement techniques, or CMI-predicted costs. The basis of comparison is the ratio of CMI-predicted costs to actual costs. The case-mix measures compared correspond to four increasingly complex levels of the DRG hierarchy. The four levels are: (1) no case-mix measure—one overall group; (2) 40 medical and surgical groups within Major Diagnostic Categories (MDCs); (3) 370 adjacent DRGs, i.e., DRGs without the complication and comorbidity (CC) distinction; and (4) the current 470 DRGs.

For each case-mix measurement category, the ratio of CMI-predicted costs to actual costs for all hospitals is set to equal 1.00. Cost ratios thus provide a relative comparison across the various hospital groups. Cost ratios greater than 1.00 indicate that, on average, actual costs are lower than CMI-predicted costs. Conversely, ratios below 1.00 indicate that, on average, actual hospital costs are higher than CMI-predicted costs.

The DRG system adjusts for significant hospital variation in costs. The ratios for the current DRGs are much closer to 1.00 than the ratios with no case-mix grouping. The ratios change the most when cases are split into medical/surgical groups and adjacent DRG groups. By comparison, using CCs to group patients—that is, moving from adjacent DRGs to DRGs—does not significantly change the ratios.

While the DRGs account for much of the variation in costs, major differences across hospital types remain unexplained. For example, CMI-predicted costs for urban hospitals are 3 percent lower than actual costs. At the same time, CMI-predicted costs for rural hospitals are 10 percent higher than actual costs.

These cost ratios, however, neither reflect actual hospital payments nor present a complete picture of payment equity. Hospital payments not only take into account DRG case mix, but adjust for urban/rural distinctions, area wage differences, teaching status, and disproportionate share status.

Table 3-7 also shows ratios of payments to costs for current DRGs (payment ratios). As with the cost ratios, the overall payment ratio for all hospitals was set equal to 1.00. For most hospital groups, payment ratios are closer to 1.00 than cost ratios using the current DRGs. Payment ratios for several hospital groups differ significantly from 1.00, however. Major teaching hospitals, for example, have a payment ratio of 1.08, while large rural hospitals have a payment ratio of .94. In general, the payment formula accounts for imbalances observed in cost ratios. While urban hospitals' predicted costs are 3 percent lower than actual costs, payments are 1 percent higher.

These findings suggest two conclusions. First, the use of currently collected data to improve the

Table 3-7. Ratios of CMI-Predicted Costs to Standardized Costs and Estimated Payments to Nonstandardized Costs, by Hospital Type

Hospital Type	Ratio of CMI-Predicted Costs to Standardized Costs				Ratio of Estimated Payments to Costs for Current DRGs*
	One Group	Medical/ Surgical w/in MDC	Adjacent DRGs	Current DRGs	
All hospitals	1.00	1.00	1.00	1.00	1.00
Urban	0.95	0.97	0.97	0.97	1.01
Rural	1.21	1.13	1.10	1.10	0.96
Major teaching	0.89	0.95	1.00	1.01	1.08
Other teaching	0.91	0.95	0.96	0.96	1.00
Non-teaching	1.07	1.04	1.02	1.02	0.99
Disproportionate share	0.99	1.00	1.01	1.01	1.05
Non-disproportionate share	1.00	1.01	1.00	1.00	0.98
New England	0.93	0.94	0.95	0.95	1.00
Middle Atlantic	1.04	1.03	1.02	1.03	1.11
South Atlantic	0.98	0.98	0.97	0.97	0.96
East North Central	0.95	0.96	0.95	0.96	0.94
East South Central	1.10	1.06	1.04	1.03	0.99
West North Central	1.04	1.04	1.04	1.04	0.99
West South Central	1.04	1.04	1.03	1.03	1.00
Mountain	1.03	1.05	1.06	1.06	1.02
Pacific	0.96	0.99	1.01	1.02	1.02
Urban <100 beds	1.16	1.08	1.07	1.07	1.06
Urban 100-249 beds	1.01	0.99	0.99	0.99	1.01
Urban 250-404 beds	0.94	0.96	0.96	0.96	0.99
Urban 405+ beds	0.88	0.94	0.96	0.96	1.02
Rural <50 beds	1.45	1.27	1.24	1.23	1.01
Rural 50-99 beds	1.31	1.19	1.17	1.16	0.97
Rural 100-169 beds	1.17	1.10	1.08	1.07	0.94
Rural 170+ beds	1.04	1.02	1.01	1.00	0.94

* Costs were estimated using length of stay and charge information from the MEDPAR file adjusted using per-diems costs and ancillary ratios of costs-to-charges from the MCR. PPS payments were calculated using fiscal year 1988 rules, deflated to reflect 1986 payments.

SOURCE: ProPAC estimates using fiscal year 1986 MEDPAR file and second-year PPS Medicare Cost Report data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

DRG classifications is unlikely to affect the overall distribution of hospital payments. Second, hospital-level payment adjustments, such as the area wage index, are much more effective tools than changes to the DRGs for improving the equity of PPS payments to hospitals. For example, the use of CCs in the DRG system (adding 100 DRGs to the 370 adjacent DRGs) does not appreciably affect the cost ratios. Thus, the types of changes in DRGs that are likely to be implemented in the short term will not significantly redistribute hospital payments.

This analysis does not provide conclusive evidence regarding the potential impact of implementing a severity adjustment to the DRGs. An improvement of this magnitude would require data not currently collected and used for classification. Analyses similar to those reported here would be necessary to document the likely hospital-level impact of DRG improvements achieved by using additional data. Preliminary results of research funded by HCFA, however, suggest that such improvements would have limited effects on the distribution of payments to hospitals.

VARIATION IN PPS OPERATING MARGINS ACROSS HOSPITALS

Hospital financial performance under PPS varied considerably during the first three years of the system. For the most part, the pattern of differences across hospital groups remained consistent during this early period of PPS implementation. That is, the overall downward trend in PPS operating margins described in Chapter 2 held true for most hospital groups. Major teaching hospitals, for example, had relatively high PPS margins for each of the three years, although their overall margin dropped by half, from 21.5 percent in the second year of PPS to 11.0 percent in the third year (see

Table 3-8). Rural hospitals had relatively low margins in each of the three years. In particular, Sole Community Hospitals had extremely low margins relative to other hospital groups.

The position of some hospital groups changed over the three-year period. Most notable are rural referral centers, whose PPS margins improved substantially compared with all hospitals. In the first year of PPS, the margin for these hospitals was 8.6 percent compared with 14.7 percent for all hospitals. For the third year, their PPS margin was 15.3 percent compared with 8.2 percent overall. The improvement reflects, at least in part, the move from a rate based on these hospitals' historical costs to an average urban hospital rate.

Although clear patterns are demonstrated across hospital groups, important variation also occurs within groups. For example, while the overall PPS margin in the third year was 8.2 percent, 10 percent of hospitals had margins of -18.5 percent or lower, and another 10 percent had margins of 19.4 percent or higher (see Table 3-9). This variation is particularly striking within the Sole Community Hospital category. The bottom 10 percent of these hospitals had margins of -31.2 percent or lower, while the top 10 percent had margins of 21.2 percent or more.

Hospitals with the Highest and Lowest Third-Year Margins

During the third year of PPS, the 10 percent of all hospitals with the highest margins were predominantly teaching and located in urban areas (see Table 3-10). By contrast, hospitals with the lowest margins tended to be small and located in rural areas. About 9 percent of hospitals had negative PPS operating margins during each of the first three years of PPS. Most of these hospitals were also small hospitals in rural areas.

Further comparison of hospitals at the extreme ends of the third-year margin distribution reveals some important differences. Hospitals in the top 10th percentile of PPS margins had higher average wage indexes and lower average costs per case. Perhaps most significantly, for these hospitals cost increases between the first and third years of PPS were relatively small. This may be explained by their slower decline in Medicare discharges. Hospitals with the highest margins had experienced a 5.4 percent cumulative decline in Medicare discharges between the first year and the third year of PPS, and only a 5.8 percent cumulative increase in costs per case during this period.

By contrast, in the third year of PPS, the 10 percent of hospitals with the lowest margins had

Table 3–8. Comparison of PPS Operating Margins for the First Three Years of PPS, by Hospital Type*

Hospital Type	Operating Margins		
	PPS 1	PPS 2	PPS 3
All hospitals	14.7	14.1	8.2
Urban	16.0	15.2	8.9
Rural	8.3	8.7	4.6
MSA > 1 million	16.8	14.6	7.8
Other urban	15.1	15.9	10.2
Rural referral	8.6	14.8	15.3
Sole community	6.2	6.9	3.1
Other rural	8.5	6.9	0.9
Major teaching	19.8	21.5	11.0
Other teaching	17.0	16.3	10.2
Non-teaching	12.4	11.5	6.4
Disproportionate share:			
MSA > 1 million	16.4	14.5	7.2
Other urban	14.9	16.4	10.2
Rural	11.2	10.9	6.2
Non-disproportionate share	14.3	13.6	8.0
New England	13.0	13.1	8.6
Middle Atlantic	16.0	15.9	8.3
South Atlantic	12.9	12.6	5.0
East North Central	15.1	14.8	10.1
East South Central	10.2	11.4	4.8
West North Central	15.9	15.6	11.8
West South Central	16.7	14.0	8.0
Mountain	13.4	14.8	11.9
Pacific	15.4	14.0	6.3
Urban <100 beds	13.7	13.7	6.8
Urban 100-249 beds	15.0	13.6	7.4
Urban 250-404 beds	15.2	13.6	8.3
Urban 405-684 beds	16.8	17.2	10.0
Urban 685+ beds	20.8	20.1	13.1
Rural <50 beds	6.3	5.8	-0.7
Rural 50-99 beds	9.3	8.4	2.6
Rural 100-169 beds	8.4	8.4	2.5
Rural 170+ beds	8.2	10.8	10.5
Voluntary	15.2	14.8	9.0
Proprietary	14.7	12.8	6.6
Urban government	14.8	14.6	6.1
Rural government	7.0	6.3	5.5

* Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York.

SOURCE: ProPAC estimates using Medicare Cost Report data from the U.S. Department of Health and Human Services, Health Care Financing Administration, for a cohort of 3,321 hospitals.

Table 3–9. Third–Year PPS Operating Margins: Means and Percentiles, by Hospital Type*

Hospital Type	Mean	Percentile				
		10th	25th	Median	75th	90th
All hospitals	8.2	-18.5	-4.6	5.1	12.7	19.4
Urban	8.9	-8.3	0.2	7.8	14.7	21.3
Rural	4.6	-28.5	-9.1	1.3	9.9	17.7
MSA > 1 million	7.8	-10.0	-1.0	6.6	13.7	21.0
Other urban	10.2	-6.4	1.8	8.9	15.5	21.3
Rural referral	15.3	-4.7	2.9	9.1	14.8	18.9
Sole community	3.1	-31.2	-7.5	1.8	13.6	21.2
Other rural	0.9	-30.0	-10.9	0.4	8.8	16.9
Major teaching	11.0	-7.9	1.6	10.4	20.2	25.9
Other teaching	10.2	-5.3	1.7	8.7	15.1	21.0
Non-teaching	6.4	-21.0	-5.9	4.2	11.9	18.8
Disproportionate share:						
MSA > 1 million	7.2	-12.0	-0.6	6.6	14.1	21.3
Other urban	10.2	-3.7	2.7	9.8	16.8	22.4
Rural	6.2	-26.4	-5.8	4.6	13.6	21.4
Non-disproportionate share	8.0	-20.6	-5.9	4.4	11.9	18.8
New England	8.6	-12.0	-2.2	6.5	12.9	17.4
Middle Atlantic	8.3	-4.4	2.6	8.8	14.2	20.5
South Atlantic	5.0	-18.1	-6.7	3.5	10.4	17.9
East North Central	10.1	-9.3	-1.4	6.6	13.1	18.8
East South Central	4.8	-11.6	-4.5	3.0	10.2	19.2
West North Central	11.8	-27.0	-5.8	4.9	12.3	20.3
West South Central	8.0	-37.3	-10.4	2.9	12.6	19.4
Mountain	11.9	-22.4	-5.5	6.1	15.5	23.5
Pacific	6.3	-16.1	-3.1	6.0	13.8	20.9
Urban <100 beds	6.8	-16.8	-3.2	7.1	16.0	25.1
Urban 100–249 beds	7.4	-7.6	0.0	7.5	14.2	20.6
Urban 250–404 beds	8.3	-4.6	2.5	8.5	13.8	19.2
Urban 405–684 beds	10.0	-4.0	2.3	9.2	16.1	21.1
Urban 685+ beds	13.1	-8.0	3.9	10.4	19.2	27.8
Rural <50 beds	-0.7	-44.7	-18.5	-1.0	10.3	19.3
Rural 50–99 beds	2.6	-18.5	-6.6	2.5	9.2	16.2
Rural 100–169 beds	2.5	-13.9	-5.6	1.7	8.5	15.7
Rural 170+ beds	10.5	-8.5	-2.9	4.2	11.1	18.2
Voluntary	9.0	-12.2	-1.6	6.6	13.5	19.7
Proprietary	6.6	-13.9	-4.7	4.8	13.1	22.5
Urban government	6.1	-12.3	-1.1	6.9	14.2	21.5
Rural government	5.5	-37.4	-14.1	-1.1	8.2	16.4

* Excludes hospitals in Maryland, Massachusetts, New Jersey and New York.

SOURCE: ProPAC estimates based on Medicare Cost Report data from the U.S. Department of Health and Human Services, Health Care Financing Administration, for 3,321 hospitals.

relatively high Medicare operating costs per case and extremely low occupancy—averaging 29 percent. Between the first and the third year of PPS, these hospitals had also experienced a larger decline in discharges and a higher increase in costs per case than hospitals with higher margins. Medicare discharges for this group had declined an average 25 percent, while average costs per case had increased approximately 49 percent.

Margin Variation Since the Third Year of PPS

Policy changes enacted since the third year of PPS may have altered the pattern of PPS operating margin differences across hospital groups. Most notably, a series of legislative changes have increased PPS payments to rural hospitals relative to urban hospitals. Separate outlier pools were established so that rural hospitals no longer contribute

Table 3–10. PPS Operating Margins: Distribution of Hospitals in the Top and Bottom 10 Percent (PPS 3) and Hospitals with Negative Margins (PPS 1, PPS 2, and PPS 3) (In Percent)*

Hospital Type	PPS 3			PPS 1, PPS 2, PPS 3
	All Hospitals	Top 10 Percent Margins	Bottom 10 Percent Margins	Negative Margins in All Three Years
Percent of All Hospitals	100.0%	10.0%	10.0%	8.7%
Urban	48.6	62.7	21.4	16.7
Rural	51.4	37.3	78.6	83.3
MSA > 1 million	24.1	30.2	13.3	7.6
Other urban	24.5	32.5	8.2	9.0
Rural referral	3.1	2.5	0.0	1.0
Sole community	5.8	5.8	8.7	10.8
Other rural	42.5	28.9	69.9	71.5
Major teaching	2.4	6.1	0.8	0.0
Other teaching	14.3	17.3	3.6	2.1
Non-teaching	83.3	76.7	95.7	97.9
Disproportionate share:				
MSA > 1 million	8.2	10.9	4.3	2.8
Other urban	8.5	12.9	1.8	3.1
Rural	4.5	6.9	5.1	4.5
Non-disproportionate share	78.9	69.3	88.8	89.6
New England	3.0	2.0	1.8	1.7
Middle Atlantic	3.3	3.6	1.0	0.4
South Atlantic	13.2	10.4	12.8	12.2
East North Central	19.4	15.7	9.7	11.5
East South Central	9.4	8.4	5.6	5.9
West North Central	16.1	16.8	21.2	21.5
West South Central	16.9	18.0	32.4	28.5
Mountain	6.1	10.4	6.4	8.0
Pacific	12.5	14.7	9.2	10.4
Urban <100 beds	12.1	22.6	12.2	10.4
Urban 100–249 beds	19.0	20.3	7.7	5.2
Urban 250–404 beds	10.7	10.4	0.8	1.0
Urban 405–684 beds	5.7	6.9	0.5	0.0
Urban 685+ beds	1.0	2.5	0.3	0.0
Rural <50 beds	24.4	24.9	58.7	54.5
Rural 50–99 beds	15.7	6.9	14.8	18.8
Rural 100–169 beds	7.5	3.3	4.6	7.6
Rural 170+ beds	3.8	2.3	0.5	2.4
Voluntary	54.8	54.6	35.8	35.5
Proprietary	14.3	19.4	13.6	11.1
Urban government	7.5	10.2	4.6	3.8
Rural government	23.3	15.8	46.0	49.5

* Excludes hospitals in Maryland, Massachusetts, New Jersey, and New York. Colums may not sum to 100 due to rounding.

SOURCE: ProPAC estimates based on Medicare Cost Report data from the U.S. Department of Health and Human Services, Health Care Financing Administration, for a cohort of 3,321 hospitals.

to outlier payments for urban hospitals. The PPS standardized amounts are now discharge-weighted so that small hospitals with low costs contribute relatively little to the average rate. The combined effect of these two changes increased rural per-case PPS payments by about 5 percent relative to urban payments.[4] In addition, higher update factors have been granted to rural hospitals.

In the absence of other changes, the combined effect of the rural hospital provisions would remove the overall differential between PPS operating margins for urban and rural hospitals. But rural hospitals may continue to experience larger volume declines, and therefore larger cost increases, than urban hospitals. Cost increases would at least partially offset the payment increases legislated for these hospitals.

Finally, Sole Community Hospitals, which have had low PPS operating margins, do not benefit from all the legislated provisions. Only 25 percent

of payments for these hospitals are based on average rates. Therefore, these hospitals receive only one-quarter of the payment increase resulting from the outlier pool change and discharge weighting. ProPAC recommended an evaluation of Sole Community Hospital policies in the *Report and Recommendations to the Secretary, U.S. Department of Health and Human Services*, March 1988.

CONCLUSIONS

Variation in hospital margins is an expected outcome of PPS, which is designed to redistribute payments from high-cost to low-cost hospitals. Moreover, some hospitals will respond to cost-containment incentives faster and more extensively than others.

Nevertheless, to ensure that PPS treats hospitals fairly, efforts to refine the technical bases for PPS payments must continue. Systematic variation in PPS operating margins among hospital groups must be explored to be sure they are not caused by flaws in the payment system.

While changes to the DRG classification system have improved the equity of payments at the patient level, the effects of these changes average out across patients within hospitals. Therefore, hospital-level adjustments are a more effective tool than incremental improvements in the DRG classification system for improving the equity of PPS payments to hospitals. More extensive changes in patient classification that may occur in the future could, however, help improve the equity of payments at the hospital level.

Much of the policy-related redistribution of payments to hospitals has been offset by case-mix index change. To some extent, this counterbalance reflects actions by policymakers to mitigate the redistributional effects of the original design of PPS. Most notably, policy decisions have favored rural hospitals, partly because they tended to have lower operating margins during the early years of PPS.

Notes to Chapter 3

1. Actual payments for these components will be less during fiscal year 1988. For part of the year, most hospitals are still paid partly on the basis of hospital-specific rates. The simulations assume that fully phased-in rates are in effect all year. In addition, the estimates reflect the reduction in the teaching adjustment legislated in OBRA 1987 for implementation beginning in fiscal year 1989. Beneficiary cost-sharing amounts are included.

2. Prospective Payment Assessment Commission, "Analysis of the Transition to National Rates," correspondence from Stuart Altman, Chairman of ProPAC, to Sen. Robert Packwood, Chairman, Committee on Finance, U.S. Senate, October 21, 1985.

3. CMI change for the 1981 to 1986 period was measured for individual hospitals. The total change for each hospital group was adjusted by a total of 2.0 percent to remove the average CMI increase from 1981 through 1983 and to add the estimated increase for 1987 and 1988. The variation across hospital groups results only from the 1981 to 1986 measured change.

4. U.S. Department of Health and Human Services, *Report to Congress: Studies of Urban-Rural and Related Geographical Adjustments in the Medicare Prospective Payment System* (Washington, DC: HHS, 1987) 2.15.

Chapter 4

Changes in the Health Care System: The Financial Effects on Beneficiaries

Chapter 4

Changes in the Health Care System: The Financial Effects on Beneficiaries

PPS and other recent changes in the health care system have significantly affected beneficiaries' out-of-pocket health care costs (liabilities). These costs include premiums and copayments (deductibles and coinsurance) related to Medicare-covered services, as well as additional costs for services that Medicare does not cover.

The continuous growth in expenditures for health care services received by Medicare beneficiaries directly affects their liabilities. The amount of Medicare-related out-of-pocket costs per enrollee, adjusted for inflation, continues to increase. The rate of increase is slower than in the past, however. In addition, total beneficiary out-of-pocket costs, as a percentage of total Medicare-related expenditures, have not changed.

Nevertheless, the continued increase in beneficiaries' liabilities is of concern because many Medicare beneficiaries have limited incomes. In addition, increases in medical care costs are greater than the cost-of-living increases applied to social security payments.

This chapter addresses the Commission's concerns about beneficiary liabilities for acute care services.[1] The relationship between health expenditures and out-of-pocket costs by Medicare enrollees, as well as changes in the components of beneficiary liability, are described. Medicare-covered services are emphasized.

Beneficiary out-of-pocket costs for Medicare-related services, payment for non-Medicare covered services, and supplemental insurance protection (Medigap policies) are summarized. A discussion of acute health care costs for the aged Medicare population by type of insurance coverage and by type of services follows. The potential effects of catastrophic insurance proposals now pending in Congress, which would influence beneficiaries' out-of-pocket costs, are also discussed. The final section highlights how beneficiary liabilities are affected by changes in site of service delivery from the inpatient hospital to ambulatory settings.

MEDICARE-COVERED SERVICES AND BENEFICIARY LIABILITIES

Medicare-covered services under Part A include inpatient hospital, post-hospital skilled nursing facility, skilled home health care, and hospice care. Medicare Part B covers part of the cost of physician services, medical suppliers, outpatient hospital treatment, and skilled home health care.[2] Because Medicare was not designed to cover all health care costs, beneficiaries must share financial responsibility for covered services through copayments, premiums, and "balance billing." The balance-billed amount is the excess over the allowed Part B charges submitted by certain providers. The beneficiary is responsible for the balance-billed amount when the physician or other supplier does not accept Medicare assignment of benefits. Beneficiaries must also pay for services that Medicare does not cover. These are discussed later in this chapter.

Total Parts A and B out-of-pocket liabilities as a percentage of Medicare total expenditures were about the same in 1987 as they were during the pre-PPS period (see Table 4-1).[3] This results from the combined effect of the following four factors:

- The Part B deductible remained constant at $75 over the period, except for a $15 increase in 1982;
- The 1986 Part B premium was frozen at the 1985 level;
- The increase in the Part A inpatient deductible was constrained legislatively by the Omnibus Budget Reconciliation Act of 1986 (OBRA 1986); and
- The balance-billed amount fell due to an increased assignment rate in 1985.[4]

Table 4–1. Beneficiaries' Liabilities as a Percent of Medicare Inpatient and Total Part A and B Expenditures, 1980–1987

Year	Total Inpatient Expenditures (In Billions)*	Beneficiary Share (Percent of Total)	Total Parts A and B Expenditures (In Billions)*	Beneficiary Share (Percent of Total)+
1980	$26.1	6.5%	$43.5	22.8%
1981	31.2	6.3	52.1	22.3
1982	36.5	7.3	61.6	23.0
1983	40.8	7.7	70.2	23.1
1984	45.1	7.3	77.9	23.3
1985	48.0	7.6	83.4	22.5
1986	50.3	8.1	91.0	22.4
1987	52.2	8.3	98.8	22.9

* Includes beneficiary liabilities and incurred benefit payments. Administrative costs are not included.

\+ Part B premiums are included in total A and B liabilities.

SOURCE: ProPAC estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration.

Total Medicare-related liabilities for all beneficiaries and the percent distribution by type of service are shown in Table 4-2. Approximately 80 percent of beneficiary liabilities are associated with Part B services, and 20 percent with inpatient hospital and other Part A services. This split remained fairly constant between 1980 and 1987.

The inpatient hospital deductible accounts for most of Part A liabilities. Since 1983, Part B coinsurance responsibilities have constituted a greater percentage of total liabilities than both the Part B deductible and balance-billed amount combined. The Part B premium and Part B coinsurance account for a similar percentage of total liabilities. However, the yearly Part B premium is the same for each enrollee, while coinsurance per beneficiary varies depending on utilization.

Under Part A, the hospital inpatient deductible for an inpatient stay has increased substantially since 1980 (see Table 4-3). (Patients readmitted within 60 days do not pay another deductible.) The deductible increased because it was calculated on the basis of the average cost of a day during a hospital stay. Dramatic declines in the average length of stay have, however, increased the average cost of a day due to the concentration of hospital services in fewer days.

ProPAC recommended changing the method for calculating the deductible in 1985. OBRA 1986 mandated that the calendar year (CY) 1987 deductible be held at $520 instead of the scheduled $572. For 1988 and beyond, the deductible will increase by the PPS update factor, adjusted for real changes in case mix.

Table 4–2. Total Beneficiaries' Liabilities and Percent Distribution, by Type of Service, 1980–1987

	Total Liabilities		Part A: Hospital Insurance				Part B: Supplementary Medical Insurance				
				Inpatient Hospital		SNF					
Year	Billions of Dollars	Total Percent	Percent Part A	Deductible	Coinsurance	Coinsurance	Part B	Deductible	Coinsurance	Billing	Premium
1980	$ 9.9	100%	18.2%	14.1%	3.1%	1.0%	81.7%	12.2%	25.5%	15.5%	28.5%
1981	11.6	100	17.9	13.9	3.1	0.9	82.6	11.6	26.4	17.2	27.3
1982	14.2	100	19.7	15.0	3.7	1.0	80.3	11.1	26.6	16.1	26.4
1983	16.2	100	20.4	15.7	3.6	1.1	79.6	10.4	27.8	15.5	25.9
1984	18.1	100	19.5	15.8	2.4	1.1	80.5	9.6	27.5	15.0	28.5
1985	18.8	100	20.6	16.9	2.6	1.0	79.4	9.2	26.5	13.8	29.9
1986	20.4	100	21.1	17.3	2.7	1.1	78.9	9.4	27.2	14.2	28.1
1987	22.6	100	20.1	16.5	2.6	1.0	79.9	8.7	30.4	11.2	29.5

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary.

Table 4–3. Medicare Part A and Part B Deductibles, Part A Coinsurance Amounts, and Part B Premiums, 1980–1988

	Part A					Part B			
	Inpatient Hospital				SNF				
	Deductible		Coinsurance*		Coinsurance*	Deductible		Premium	
Benefit Period	Amount	Percent Change	Days 61–90	Days 91–150	Days 21–100	Amount	Percent Change	Amount	Percent Change
1980	$180		$ 45	$ 90	$22.50	$60		$115	
1981	204	13.3%	51	102	25.50	60	0.0%	132	14.8%
1982	260	27.5	65	130	32.50	75	25.0	146	10.6
1983	304	16.9	76	152	38.00	75	0.0	146	0.0
1984	356	17.1	89	178	44.50	75	0.0	175	19.9
1985	400	12.4	100	200	50.00	75	0.0	186	6.3
1986	492	23.0	123	246	61.50	75	0.0	186	0.0
1987	520	5.7	130	260	65.00	75	0.0	215	15.6
1988	540	3.8	135	270	67.50	75	0.0	298	38.6

* Inpatient hospital coinsurance for days 61–90 is equivalent to 1/4 of the hospital deductible; for days 91–150, 1/2 of the deductible; and for the SNF coinsurance, 1/8 of the deductible.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary.

The Part B premium has increased over the past nine years (see Table 4-3). The rise was sharpest in 1988 when the premium increased by 38.6 percent to $298, up from $215 in CY 1987. Chapter 5 discusses the growth in the Part B premium more fully.

Out-of-pocket costs per enrollee, adjusted for inflation by the medical care component of the consumer price index (CPI), rose from $645 to $724, a 12.2 percent increase from 1980 to 1987. The growth in these costs was less rapid, however, from 1983 to 1987 than from 1979 to 1983 (see Table 4-4). Adjusted for inflation, the 1979-83 increase was 16.0 percent, compared with 0.4 percent for the 1983-87 period. During this later period, program benefit payments, adjusted for inflation, grew 2.5 percent.

Finally, the relationship between out-of-pocket costs and benefit payments was more favorable for the average beneficiary from 1983 to 1987 than from 1979 to 1983. A ratio of 1.0 would indicate that out-of-pocket costs were increasing at the same rate as benefit payments. On a per-enrollee basis, the ratio of real percentage change in out-of-pocket costs to real percent change in benefit payments was .16 for the 1983-87 period, compared with .79 for the 1979-83 period.[5]

The most notable change during the 1983-87 period was the decrease, in constant dollars, in balance billing per enrollee. Because balance billing is usually not covered by Medigap policies, a decline in the growth of these costs affects beneficiary out-of-pocket costs directly. This decline is due to an increase in the assignment rate. Assigned Part B allowed charges increased from 52.9 percent in 1980 to 59.7 percent in 1984. In 1985, the assignment rate reached 68.6 percent, an increase of nearly 10 percentage points in one year. A preliminary assignment rate of 75.4 percent is estimated for 1987.[6] In addition, while the average beneficiary was liable for about $81 in balance billings in 1987, the amount of incurred liabilities actually collected is unknown.

Despite increases in Medicare copayments and the Part B premium, out-of-pocket costs per enrollee are not keeping pace with the overall growth of program expenditures (see Chapter 5). Although total beneficiary out-of-pocket costs as a percentage of total Medicare expenditures for Medicare-covered services are about the same today as they were in the early 1980s, this trend may not continue. Several legislative changes since 1985 have increased beneficiary cost-sharing obligations. Estimated beneficiary liabilities for 1986 and 1987 probably do not fully reflect the effects of these changes.

Among the legislative changes is the OBRA 1986 provision that beneficiaries must pay coinsurance for ambulatory surgery center visits and for ambulatory surgical procedures billed by physicians who accept assignment regardless of setting.[7] OBRA 1986 also mandated the reimbursement, on

Table 4-4. Average Medicare-Related Out-of-Pocket Costs Per Beneficiary, Calendar Years 1979, 1983, and 1987[a]

Out-of-Pocket Costs Per Beneficiary	1979 Costs in 1987 Dollars	1983 Costs in 1987 Dollars	1987 Costs	Real Percent Change[b] 1979-1983	Real Percent Change[b] 1983-1987
Part A					
Deductible	$ 83	$ 113	$ 119	35.9%	5.5%
Coinsurance (hospital)	18	26	19	44.0	-28.1
Coinsurance (SNF)	6	8	7	26.3	-5.3
Total Part A	107	**147**	**145**	**36.7**	**-1.0**
Part B[c]					
Premium	201	189	215	-5.8	13.8
Deductable	82	75	63	-9.1	-15.9
Coinsurance	149	199	220	34.2	10.1
Balance billings	82	111	81	34.7	-27.2
Total Part B	**514**	**574**	**579**	**11.7**	**0.7**
Parts A and B out-of-pocket costs[c]	621	721	724	16.0	0.4
Parts A and B benefit payments	2,143	2,577	2,641	20.3	2.5

[a] Costs have been rounded to the nearest dollar.

[b] Real growth rates are adjusted for inflation by the medical care component of the CPI. The real change between 1980 and 1987 is 12.2 percent.

[c] Part B calculations and total Parts A and B out-of-pocket costs include the Part B premium. Calculations include dual eligibles, Medicare beneficiaries also eligible for Medicaid.

SOURCE: ProPAC's estimates based on data from the U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary.

a reasonable charge basis, of certified registered nurse anesthetists (CRNAs) and physician assistants. This provision placed additional coinsurance requirements on beneficiaries who use their services. Furthermore, Medigap premiums, also not reflected by the Medicare-related liability totals, are substantial and continue to increase.

Out-of-Pocket Costs for Aged Beneficiaries With Supplementary Coverage

One of the purposes of maintaining beneficiary cost sharing is to encourage the appropriate use of services. Another is to help finance an increasingly expensive package of benefits. Beneficiary out-of-pocket costs may affect both the beneficiary's and the provider's decisions regarding health services.[8] Decreases in beneficiary out-of-pocket costs could, therefore, lead to higher utilization and overall increases in Medicare expenditures. On the other hand, caution should be taken to ensure that the level of cost sharing does not keep beneficiaries from receiving needed services.

Most of the cost-sharing obligations beneficiaries incur under Medicare are covered by supplementary policies. Out-of-pocket costs for beneficiaries who require many services during the year can be substantial because of Medicare cost-sharing requirements and coverage limitations. But only 20 percent of aged Medicare enrollees lack some sort of supplemental insurance coverage, either through Medigap policies or state Medicaid programs (see Table 4-5). Almost 8 percent of aged enrollees qualify for Medicaid coverage. These beneficiaries are called "dual eligibles." In many states, Medicaid covers Medicare premiums and copayment costs.

The proportion of aged beneficiaries with Medigap policies has remained unchanged since 1980. Seventy-two percent have supplementary private insurance to protect against potential high cost-sharing expenses.[9] Between 15 and 25 percent have more than one Medigap policy.

Medigap policies are most likely to be purchased

Table 4-5. Percent Distribution of Demographic Groups, by Insurance Coverage, Aged Medicare Enrollees, 1984

Characteristic	All Enrollees	Insurance Group: Medicare Only	Medicare and Private	Medicare and Medicaid
All enrollees	100.0%	20.0%	72.0%	8.0%
By family income				
Under $5,000	100.0	29.0	44.0	28.0
$5,000-$8,999	100.0	30.0	59.0	12.0
$9,000-$14,999	100.0	21.0	76.0	4.0
$15,000-$24,999	100.0	14.0	83.0	3.0
$25,000 and over	100.0	10.0	87.0	3.0
By poverty status				
Poor	100.0	32.0	35.0	33.0
Not poor	100.0	19.0	77.0	5.0
By age				
65-69	100.0	17.0	78.0	5.0
70-74	100.0	19.0	73.0	8.0
75-79	100.0	20.0	72.0	8.0
80 or older	100.0	27.0	61.0	13.0
By self-reported health status				
Excellent	100.0	17.0	82.0	1.0
Very Good	100.0	19.0	78.0	3.0
Good	100.0	20.0	77.0	3.0
Fair	100.0	24.0	70.0	6.0
Poor	100.0	28.0	57.0	15.0

SOURCE: S. Christensen, S. Long, and J. Rodgers, The Milbank Quarterly 65(3):408, 1987.

by beneficiaries who are relatively healthy, wealthy, and young. Thus, while health care needs typically increase with age, so does the likelihood of being without supplementary coverage. In 1984, for example, 17 percent of noninstitutionalized Medicare beneficiaries between 65 and 69 lacked supplementary coverage, compared with 27 percent who were 80 or older (see Table 4-5).

Annual Medigap premiums averaged roughly $300 to $400 per person in 1984, although considerable differences in benefits and administrative costs caused them to range from as low as $150 to over $1,000.[10] Furthermore, the cost of the Medigap premium can exceed the out-of-pocket costs for the Medicare-related copayments. On the other hand, for the 20 percent of Medicare beneficiaries with employer-provided coverage, insurance protection is such that the beneficiary does not pay any premium.

Changes in the Medigap premiums will affect beneficiaries regardless of their income levels. However, the impact is greater on beneficiaries with lower incomes. Of the aged beneficiaries with incomes less than $5,000, 44 percent have supplementary private insurance. Of the elderly persons with incomes of $25,000 or more, 87 percent have Medigap policies.

Medicare covers 72 percent of acute care costs for aged enrollees; Medicaid pays less than 3 percent (see Table 4-6). Enrollees cover approximately 18 percent of acute care costs in insurance premiums (Medicare and Medigap), on average, and an additional 11 percent in other out-of-pocket costs.

Variations in the use of acute care services occur partly because beneficiaries responsible for Medicare's cost-sharing obligations are discouraged from using as many services as those for whom Medigap or Medicaid covers copayments. The effects of health status and other factors on the use of services must also be considered. Total acute care costs of $4,725 for dual enrollees, for example, are

Table 4–6. Estimated Average Acute Health Care Costs and Means of Payment for Aged Medicare Enrollees, 1987

	Enrollee Group by Insurance Coverage			
	All Enrollees	Medicare Only	Medicare and Medigap	Medicare and Medicaid
Total acute health care costs (in dollars per enrollee)*				
All enrollees	$3,351	$3,254	$3,220	$4,725
With no hospital stays	817	752	808	1,090
With hospital stays	12,213	12,082	12,185	12,600
Share (in percent) of enrollees' costs paid by:+				
Medicare	72.0%	72.1%	71.0%	77.8%
Medicaid	2.6	0.0	0.0	22.2
Premiums (Medicare, Medigap)	17.5	6.6	23.5	0.0
Other out-of-pocket	10.8	21.3	9.6	0.0

* Includes total beneficiary and program costs for Medicare-covered services and for prescription drugs. Balance billing is the excess over the allowed Part B charges submitted by certain providers. The amount actually collected is unknown.

+ The shares sum to more than 100 percent of total costs for Medigap enrollees because of administrative expenses in addition to benefit costs included in Medigap premiums.

SOURCE: S. Christensen, S. Long, and J. Rodgers, The Milbank Quarterly 65(3):400, 1987.

nearly 50 percent higher than costs of $3,254 for beneficiaries covered only by Medicare.

Because Medigap enrollees are typically younger and healthier than other groups of beneficiaries, their average acute care costs are lower. However, compared with other groups of similar age and health status, Medigap enrollees are likelier to use health services more heavily. Holding constant all other determinants of use, aged Medicare enrollees covered by Medigap insurance use 24 percent more inpatient hospital and physician services than enrollees without supplementary coverage.[11]

Enrollees with Medigap policies spent, on average, $1,067 for out-of-pocket and premium costs in 1987 compared with $908 for those covered only by Medicare (see Table 4-7). Dual eligible beneficiaries have virtually no out-of-pocket and premium costs.[12]

Beneficiaries with Medigap policies have higher out-of-pocket and premium costs than those without supplementary insurance because the Medigap premium includes both administrative and health benefit costs. Administrative costs tend to consume about 15 to 35 percent of Medigap premiums. Although the average costs are slightly higher for these beneficiaries, the potential risk that they will incur catastrophic out-of-pocket costs is much lower compared with enrollees covered only by Medicare.

Medicare coverage by itself does not protect beneficiaries from potentially catastrophic out-of-pocket costs for acute care. Medicare's copayment requirements are substantial, and there is no ceiling on a beneficiary's annual liability. The 20 percent of enrollees without supplementary coverage face the risk of extremely high out-of-pocket costs for acute care services, although in any year less than 1 percent of all enrollees actually incur catastrophic levels of costs.

Financial Effects of Catastrophic Insurance Coverage

Catastrophic health insurance coverage for Medicare beneficiaries has been the source of extensive debate. During the first session of the 100th Congress, both the House and the Senate passed bills providing catastrophic health care coverage for Medicare beneficiaries. These bills change coverage by protecting Medicare beneficiaries from high health care costs that result from long, expensive acute illnesses. Coverage is directed primarily at acute care, however, placing the financial burden of long-term care on the beneficiary or other payers such as Medicaid. Eighty percent of health-related costs in excess of $2,000 a year are due to nursing home and other long-term care expenses.[13]

Table 4–7. Estimated Premium and Out-of-Pocket Costs for Aged Medicare Enrollees, 1987

Service Utilization, by Aged Enrollee Category[b]	Percentage of Enrollees (N = 28 million)	Enrollees' Average Costs[a]					
		Insurance Premiums	Copayments HI[c]	SMI	Balance Billing	Prescription Drugs	Total
All aged Medicare enrollees							
All services	100.0%	$585	$ 32	$ 98	$ 86	$145	$ 947
Medicare coverage only							
All services	20.1	215	159	272	114	148	908
No hospitalization, no reimbursable services	6.2	215	0	25	0	0	240
One or more hospital stays, coinsurance days	0.1	215	5,325	1,653	511	314	8,019
Medicare and Medigap coverage[d]							
All services	71.7	757	0	61	89	161	1,067
No hospitalization, no reimbursable services	19.0	757	0	26	0	0	783
One or more hospital stays, coinsurance days	0.3	757	0	75	428	339	1,599
Medicare and Medicaid coverage							
All services	8.3	0	0	0	0	0	0
No hospitalization, no reimbursable services	1.2	0	0	0	0	0	0
One or more hospital stays, coinsurance days	0.1	0	0	0	0	0	0

[a] Costs shown represent liabilities, some of which may not be paid.

[b] Enrollees' average costs and the range from the lowest to the highest, by service use, are displayed.

[c] Includes enrollee costs for inpatient days after hospital benefits are exhausted. That is, these costs are treated as 100% coinsurance payment.

[d] Premium costs for these enrollees are overstated to the extent that some Medigap premiums are paid by former employers.

SOURCE: S. Christensen, S. Long, and J. Rodgers, The Milbank Quarterly 65(3):404–05, 1987.

Because catastrophic insurance would cap copayment obligations, beneficiaries covered only by Medicare may use more services. The Congressional Budget Office (CBO) estimates, for example, that an anticipated behavioral response would increase overall costs associated with catastrophic packages by 10 percent.

The response of beneficiaries with Medigap policies is unpredictable because of uncertainty about what changes insurers would make in Medigap policies if catastrophic coverage passed. Policy coverage of such liabilities as a drug-related deductible or balance-billed amount depends on the particular provisions finally enacted. It is unlikely, however, that long-term care benefits will be covered by Medigap policies due to the risk and expense involved.

FINANCIAL IMPLICATIONS OF SERVICES NOT COVERED BY MEDICARE

Medicare was established to help protect the elderly and disabled from excessive medical costs. Yet because many services are not covered, beneficiaries can incur major expenses. Services generally not covered are: most prescription and nonprescription drugs, nursing home custodial care, dental care, eyeglasses and routine eye exams, unrestricted psychiatric care, hearing aids and tests, preventive care, and routine physical examinations.[14] Noncovered services are paid for primarily by the beneficiary, by Medicaid, and sometimes by insurance policies other than Medicare.

Estimated total out-of-pocket costs and costs per aged beneficiary for noncovered services in CY 1987 appear in Table 4-8. Cost estimates for noncovered services are imprecise because this type of information is not gathered for payment purposes. Nevertheless, the estimates illustrate the magnitude of these costs relative to overall Medicare beneficiaries' liabilities.

Total out-of-pocket costs for nursing home care are of the same magnitude as all other Medicare-related beneficiary liabilities. Total payments range from about $15 billion to $25 billion, or an average of $530 to $890 per aged Medicare beneficiary. However, long-term care costs are concentrated on 5 percent of enrollees annually, with average costs of a year's stay totaling about $20,000.[15] These beneficiaries face a greater risk of incurring catastrophic out-of-pocket costs for long-term care than for acute care services. The likelihood of using skilled nursing care rises with the age of the enrollee, placing a greater out-of-pocket burden on very elderly enrollees. This is also true for other Medicare services.[16]

CHANGES IN SITE OF CARE: THE EFFECTS ON BENEFICIARY COST SHARING

The place and type of service received determine the effect that changes in site of care may have on beneficiary liability. Medicare may not cover a particular service in one of these new settings. In these cases, the beneficiary is responsible for the entire cost of care. Even if a particular service is covered, certain dollar or day limits are tied to varying coinsurance amounts the beneficiary must pay.

On the other hand, the movement of services to other settings can reduce beneficiary out-of-pocket costs. ProPAC analysis indicates that beneficiary cost-sharing liabilities for facility charges are less when a surgical procedure is performed in an outpatient setting rather than during the inpatient hospital stay. This is probably true for medical procedures as well.

The average coinsurance of $190 in fiscal year 1985 for the top ten ambulatory surgical procedures in an outpatient hospital facility was notably less than the CY 1985 inpatient hospital deductible of $492 (see Table 4-9).[17] The average coinsurance of $100 for the most expensive group of surgical procedures performed in free-standing ambulatory surgical centers (ASC) was even lower.[18]

ProPAC compared beneficiary cost-sharing liabilities associated with different sites for surgical treatment of typical, uncomplicated cases. The CY 1985 inpatient hospital deductible was compared with the average coinsurance amount related to facility charges for surgical procedures performed

Table 4-8. Estimated Total and Average Expenditures for Aged Beneficiaries for Services Not Covered by Medicare, 1987[a]

Noncovered Services	Total (In Billions)	Average Per Aged Enrollee
Prescription drugs	$4.0 -- $8.5	$145 -- $305[a]
Nursing home care	$15.0 -- $25.0	$530 -- $890
Dental services[b]	5.0	130
Eyeglasses and appliances[b]	1.5	35
Total Medicare liabilities[c]	22.6	800
Part B balance billing[c]	6.7	238

[a] Data pertains to 28 million aged Medicare enrollees; average prescription drug benefits for aged and disabled enrollees is $342. Nonprescription drug expenditures are not included.

[b] Estimates of dental services and eyeglasses and appliances for the aged population were derived from the national health expenditure data for the overall U.S. population.

[c] Estimated total Medicare and balance billing amounts for 1987 are ProPAC compilations of the U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary's estimates. Total Medicare liabilities include Part B premiums.

SOURCES: Congressional Budget Office; U.S. Department of Health and Human Services, Health Care Financing Administration; and American Association of Retired Persons estimates.

Table 4-9. Medicare Mean Billed Charges and Beneficiary Liabilities for the Top Ten DRGs for Ambulatory Surgery Procedures in Hospital Outpatient Departments During Fiscal Year 1985

DRG	Description	Mean Charge	Mean Coinsurance	Total Visits
Average coinsurance for top ten DRGs for ambulatory surgery procedures in OPDs			$190	
39	Lens procedures	$1,550	310	593,400
182	Esophagitis, gastroenteritis and misc. digestive disorders age 69+ or w/CC	300	60	141,600
269	Other skin, subcutaneous tissue and breast OR proc. age 69+ or w/CC	275	55	111,000
188	Other digestive system diagnoses age 69+ or w/CC	300	60	76,000
183	Esophagitis, gastroenteritis and misc. digestive disorders age 65 - 69 w/o CC	275	55	54,600
47	Other disorders of the eye, age 65+ or w/CC	525	105	49,400
40	Extraocular procedures except orbit, age 65+	575	115	46,600
270	Other skin, subcutaneous tissue and breast OR procedures under age 70 w/o comorbidity	300	60	41,500
189	Other digestive system diagnoses age 65+ w/o CC	500	100	37,250
262	Breast biopsy and local excision for non-malignancy	675	135	35,950
Inpatient hospital deductible, calendar year 1985				492
Ambulatory surgery center coinsurance, fiscal year 1985*				100

* The $100 was based on the Group 4 ASC payment rate of $336 effective during 1985.

SOURCE: Brandeis University calculations (under the current cooperative agreement with the U.S. Department of Health and Human Services, Health Care Financing Administration, Office of Research and Demonstrations) using the 1985 5 percent Medicare hospital outpatient bill skeleton file.

in hospital outpatient departments and in free-standing ambulatory surgery centers during fiscal year 1985. The Part B deductible was not included in the outpatient department or ASC calculations because ProPAC assumed the deductible was paid to cover physician services, regardless of the site. Similarly, coinsurance amounts for an inpatient hospital stay were not considered because of the focus on typical, uncomplicated cases.

Using 1985 Part B Medicare Annual Data (BMAD), ProPAC found that physicians' charges do not vary significantly for similar procedures, regardless of site. Because of variation in physician assignment rate by place of service, however, balance billing may vary by site.

When beneficiaries are treated as inpatients but discharged early for further outpatient care, they must cover the coinsurance for any outpatient charges in addition to the inpatient hospital deductible.[19] Furthermore, some services generally included in a hospital stay may not be covered in the outpatient setting. In these cases, beneficiaries must pay all of the charges.

In summary, major changes in site of care are affecting beneficiary out-of-pocket spending. Cost-sharing responsibilities for facility charges are less when the procedure is performed in an outpatient setting rather than during the inpatient hospital stay. Out-of-pocket costs, however, are greater when outpatient services are furnished in addition to the

inpatient stay. Data are not available to determine overall out-of-pocket spending for Medicare-covered services related to surgical procedures. Because of the critical role PPS is playing in this area, the Commission will continue to monitor beneficiary liability as services move from acute care hosptial to ambulatory care settings.

CONCLUSIONS

Medicare-related beneficiary out-of-pocket costs increased during the 1980s. The most significant increases were in the Part A inpatient hospital deductible and the Part B (physician and other non-hospital services) premium. The Part A deductions rose from $180 in 1980 to $400 in 1985 and to $540 in 1988. The Part B premium rose from $115 in 1980 to $186 in 1985 and to $298 in 1988. Despite these increases, the total beneficiary share of spending for covered services remained nearly constant from 1980 to 1987, at approximately 23 percent. The average Medicare-related out-of-pocket costs per beneficiary, adjusted for inflation by the medical care component of the CIP, increased only 0.4 percent between 1983 and 1987, compared with an increase of 16.0 percent between 1979 and 1983.

The rate of increase in Medicare-related beneficiary out-of-pocket costs is less than overall Medicare program growth (see Chapter 5). However, Medicare coverage does not always protect enrollees from the risk of high out-of-pocket costs for Medicare-covered acute care services. There is widespread concern about adequate protection from the risk of unexpected, catastrophic high costs and underutilization of services, on the one hand, and overprotection that encourages greater—perhaps inappropriate—utilization of services, on the other. Moreover, the extent of beneficiary liabilities may affect both beneficiary and provider decisions regarding health services.

Noncovered services are primarily paid for directly by beneficiaries, with some coverage through private insurance. Nursing home care, which averaged from $530 to $890 per aged beneficiary in 1987, is by far the most significant of these services. Approximately 5 percent of aged beneficiaries require nursing home and other long-term care services each year, and thus are at greater risk of incurring substantial out-of-pocket costs.

Beneficiary out-of-pocket spending is also affected by the change in site of services from the inpatient hospital to ambulatory settings. ProPAC analysis indicates that when a surgical or medical procedure is performed in the outpatient area, rather than the inpatient hospital setting, beneficiary cost-sharing responsibilities for the facility charges are reduced.

Notes to Chapter 4

1. The Medicare program provides the aged and disabled with a basic level of protection from hospital and physician costs. This chapter deals primarily with the aged population, which accounts for almost 90 percent of Medicare enrollees. According to HCFA, approximately 97 percent of the persons over 65 are covered under Part A (Hospital Insurance, HI) and 95 percent under Part B (Supplementary Medical Insurance, SMI).

2. A more detailed description of Medicare coverage appeared in ProPAC's February 1987 report, *Medicare Prospective Payment and the American Health Care System.*

3. Total expenditures refer to total incurred Medicare dollars spent on behalf of beneficiaries regardless of financing; that is, general trust fund and premium contributions. The total inpatient expenditures include copayments (coinsurance and deductibles); total Parts A and B expenditures include copayments, balance billing, and the Part B premium.

4. Increases to balance billing amounts probably have been limited by the maximum allowable actual charge (MAAC) program for nonparticipating physicians. An OBRA 1986 provision created the MAAC program, which subjected nonparticipating physicians to a series of limits, including a general cap on charge increases. OBRA 1987 provisions further adjust these charges. Balance billing amounts are also usually not covered by Medigap insurance policies.

5. These calculations include the Part B premium in the total of out-of-pocket costs. If premiums were not included in the calculations, there would be even stronger indications that beneficiaries' liabilities are not growing as rapidly as they did in the early 1980s.

6. Physician Payment Review Commission, *Annual Report to Congress* (Washington, DC: Physician Payment Review Commission, March 1988)138. The assignment rates include Medicare charges for services received by Medicare-Medicaid beneficiaries. Providers are required to accept assignment for Medicaid recipients, who comprise approximately 9 percent of Medicare enrollees. Since 1986, assignment is also required for all laboratory tests.

7. Coinsurance already was required for hospital outpatient visits and for ambulatory surgical procedures billed by physicians not accepting assignment.

8. Willard G. Manning, Joseph P. Newhouse, Naihua Duan, et al., *Health Insurance and the Demand for Medical Care* (Santa Monica, CA: RAND, 1988).

9. Medigap policies cover Medicare's deductible and coinsurance, but do not usually cover physician charges that exceed Medicare-allowed amounts (balance billing) or coinsurance for skilled nursing facility care.

10. U.S. Congress, House of Representatives, Committee on Ways and Means, *Background Materials on Health Coverage and Expenses of the Medicare Population* (Washington, DC: U.S. Government Printing Office, May 5, 1987). CBO tabulations of Survey of Income and Program Participation (SIPP).

11. Sandra Christensen, Stephen Long, Jack Rodgers, "Acute Health Care Costs for the Aged Medicare Population," *The Milbank Quarterly* 65(3):397-493, 1987. Other determinants of variation in utilization rates among insurance groups include enrollee's health status, age, sex, race, education, and family income. For inpatient hospital stays, Medigap insurance increases the probability of one or more admissions by about 25 percent. Medigap's effect did not extend to length of stay, which would be expected because Medigap pays the first-day hospital deductible. No further coverage protection is provided until after the 60th day of care, which few beneficiaries exceed. Medigap's payment for Medicare's coinsurance for physician services increases the probability that beneficiaries will use any

services by 12 percent, and the amount of services used by 11 percent.

12. Medicare enrollees who also qualify for Medicaid benefits are typically not liable for any of Medicare's premium or copayment charges. Balance billing is not permitted for these enrollees.

13. "Who Can Afford a Nursing Home?" *Consumer Reports* 53(5):300-11, May 1988.

14. Medicare covers part of the cost of post-hospital skilled nursing facility care. For skilled-nursing care in approved facilities, Medicare covers 100 percent of eligible expenses for 20 days and the entire reasonable cost except for one-eighth of the CY deductible each day for days 21 through 100. Medicare does not cover skilled nursing care for beneficiary stays beyond 100 days, or for custodial or intermediate care.

15. "Who Can Afford?" 300-11.

16. Marilyn Moon, "The Elderly's Access to Health Care Services: The Crude and Subtle Impacts of Medicare Changes," *Social Justice Research* 1(3):361-75,1987.

17. Twenty-five ambulatory procedures were ranked on the basis of frequency, although only the top ten are shown in Table 4-9. Of all 25 procedures, cataract surgeries were performed most frequently. Costs for these surgeries exceed costs for all others by an average of 300 percent.

18. Covered surgical procedures are classified into four separate groups to which four separate ASC payment rates apply. Group 4 has the highest payment rate. The $100 was based on Group 4 ASC payment rate of $336, effective during 1985. To derive the highest possible average coinsurance in an ASC, ProPAC assumed multiple surgeries (1.5 times $336) and then multiplied the ASC prospectively determined rate by 20 percent. While coinsurance for ASC visits was not mandated in 1985, the figure provides a reasonable representation of coinsurance obligations relative to OPD facility coinsurance and inpatient hospital deductible.

19. For more details, see ProPAC's February 1987 report, *Medicare Prospective Payment and the American Health Care System*, which included several examples of how earlier discharges to the home with possible home health care coverage or to a skilled nursing facility affects beneficaries' out-of-pocket costs.

Chapter 5

Health Expenditures and Cost-Containment Activities

Chapter 5

Health Expenditures and Cost-Containment Activities

The enactment of PPS for Medicare hospital reimbursement was a major Federal initiative in the area of health care cost containment. Other insurers, both public and private, have also aggressively pursued health care cost-control programs. Faced with spiraling growth in expenditures, state Medicaid programs introduced new health care delivery and financing models. Employers, protecting more than 160 million workers and their dependents against the cost of illness, encouraged enrollment in managed care programs as an alternative to conventional health insurance.

In this chapter, the overall impact of such changes on the health care delivery system is described through a review of national health expenditures. Medicare program expenditures, together with the efforts of state governments and employers to slow the growth of health expenditures, are also discussed.

TRENDS IN NATIONAL HEALTH EXPENDITURES

Aggregate health care spending continues to escalate despite efforts to control its growth. National health expenditures totaled $458 billion in 1986, reaching $496 billion in 1987. Health care spending increased by 8.4 percent in both years, up from 8.1 percent in 1985.

Health care expenditures continue to grow faster than the total gross national product (GNP). Figure 5-1 displays the cumulative percentage change in national health expenditures and GNP, adjusted for general inflation, since 1976. The major component of the discrepancy between the two growth trends is inflation specific to the health care sector. Because of this difference in growth rates, health care expenditures account for an increasing share of GNP. In 1980, health care spending accounted for 9.1 percent of GNP. By 1986, it was 10.9 percent; by 1987, it had risen to 11.2 percent.

Data on inflation-adjusted growth rates for the overall economy and the health care sector suggest that PPS may have helped to reduce the relative growth of the latter. In the pre-PPS period from 1980 to 1983, the average annual inflation-adjusted growth rates for GNP and health expenditures were 1.0 and 5.9 percent, respectively. In the PPS period from 1984 to 1987, they were 2.9 and 5.2 percent, respectively. Since the implementation of PPS, therefore, the growth of the general economy has accelerated, while the growth of health expenditures has decelerated slightly. Nevertheless, health care spending continues to rise at a rate that will sustain the continuing increase in the proportion of GNP devoted to health care.

Personal health care spending—total health expenditures minus the costs of research, government public health activities, and administration—accounts for 88 percent of national health expenditures. Personal health care expenditures increased 8.8 percent from 1985 to 1986 and 8.6 percent from 1986 to 1987. These increases consisted of the components listed in Table 5-1. About half of the increase in each year resulted from factors specific to the health care sector, namely, medical care price inflation and changes in service intensity.

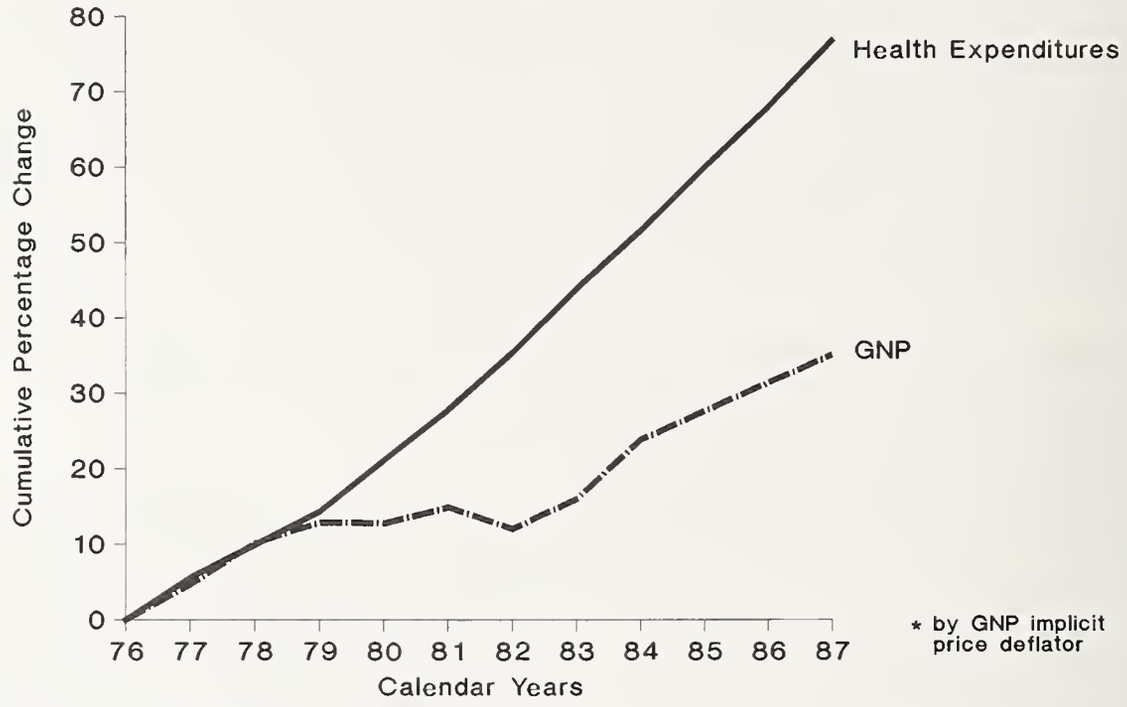
From 1985 to 1987, the share of personal health care expenditures paid by private sources increased, while the share paid by government sources decreased (see Table 5-2). The increase in the private dollars was equally divided between direct patient payments and other sources (0.7 percentage points each). Decreased spending by Medicare accounted for most of the reduction from government sources (1.0 percentage point); Medicaid spending remained constant. Within Medicare, hospital spending as a percentage of total personal health care expenditures declined by 1.6 percentage points, whereas spending for other types of medical care increased by 0.6 percentage points.

Table 5–1. Growth in Components of Personal Health Care Expenditures, 1983–1987 (In Percent)

Component	1983	1984	1985	1986	1987
General inflation	43%	47%	43%	32%	41%
Medical care price inflation	23	21	13	22	16
Population growth	11	12	12	11	11
Changes in consumption patterns	23	20	32	35	32

SOURCES: U.S. Department of Health and Human Services, Health Care Financing Administration (HCFA), Office of the Actuary, Division of National Cost Estimates (1986) and ProPAC estimates (1987) based on HCFA methodology.

Figure 5–1. Cumulative Percentage Change since 1976 in Inflation-Adjusted* GNP and National Health Expenditures



Source: Division of National Cost Estimates, Office of the Actuary, Health Care Financing Administration and Bureau of Economic Analysis

Table 5–2. Sources of Payment for Personal Health Care Expenditures, 1985–1987 (In Percent)

Source	1985	1986	1987
Total private	**60.0%**	**60.4%**	**61.4%**
Direct patient payments	28.4	28.7	29.1
Insurance and other sources	31.6	31.7	32.3
Total government	**40.0**	**39.6**	**38.6**
Medicare	19.0	18.8	18.0
Hospital	13.2	12.8	11.6
Other	5.8	6.0	6.4
Medicaid (Federal and state)	10.8	10.8	10.8
Other programs	10.2	10.0	9.8
Total	**100.0**	**100.0**	**100.0**

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary, Division of National Cost Estimates.

The share of personal health care expenditures attributed to hospital care declined from 1985 to 1987. The decline consisted of a decrease in the government share and a partially offsetting increase in the private share. The decrease in the government share was mainly due to the decline in Medicare's share of hospital spending. The increase in the private share occurred primarily in direct patient payments.

Trends in Medicare Expenditures

Medicare inpatient and outpatient hospital expenditures totaled $54.1 billion in 1987, a 5.3 percent increase over 1986.[1] These expenditures made up 65 percent of total Medicare benefits in 1987, compared with 67 percent in 1986. The decline in this percentage consisted of a 3 percentage point drop in inpatient spending and a 1 percentage point increase in outpatient spending.

In the five-year period spanning 1978 to 1983, total Medicare expenditures more than doubled, rising from $26 billion to $58 billion. This doubling of expenditures occurred in all the major spending categories (see Table 5-3). Since the implementation of PPS, the growth in Part A inpatient hospital expenditures has slowed significantly. Reductions in hospital admission rates, discussed in Chapter 1, were largely responsible for this decline.

The 4.6 percent average annual growth in Medicare inpatient expenditures from 1984 to 1987 was less than a third of the 16.8 percent average during the preceding five years. Growth in Part A expenditures for other services, such as home health and skilled nursing care, exhibited a similar pattern. These figures have not been adjusted, and therefore reflect inflation in the general economy as well as that specific to the health care sector.

Growth in Part B outpatient expenditures also slowed but not as dramatically. The average annual growth rate for these expenditures was 19.4 percent during the five years preceding PPS, and 16.3 percent during the first three years of PPS. Growth in expenditures for other Part B services, mainly physicians' services, showed a similar pattern. The average annual growth from 1978 to 1983 was 19.2 percent and from 1984 to 1987, 15.6 percent. Again, the percent change in the average annual growth includes inflationary changes in the general economy and the health care sector.

Because Part A inpatient hospital expenditures have been growing much more slowly than Part B expenditures since PPS, their share of total Medicare expenditures has been falling. Whereas Part A accounted for 68 percent of total Medicare expenditures in 1977, it represented 58 percent of the total in 1987.

Table 5-3. Medicare Benefit Payments (in Billions of Dollars) and Percent Change, 1977–1987

Calendar Year	PART A Inpatient Hospital Payments	PART A Inpatient Hospital Percent Change	PART B Outpatient Hospital Payments	PART B Outpatient Hospital Percent Change	PART A Other Services[a] Payments	PART A Other Services[a] Percent Change	PART B Other Services[b] Payments	PART B Other Services[b] Percent Change	TOTAL MEDICARE Payments	TOTAL MEDICARE Percent Change
1977	$15.1	--	$1.1	--	$0.7	--	$5.3	--	$22.2	--
1978	17.3	14.9%	1.4	21.2%	0.8	10.8%	6.2	17.4%	25.7	15.7%
1979	20.2	16.5	1.6	20.6	0.9	14.3	7.4	19.6	30.1	17.4
1980	24.4	20.8	2.0	20.1	1.0	17.7	9.0	21.7	36.4	20.9
1981	29.2	19.7	2.4	20.0	1.4	36.3	10.7	18.5	43.7	19.9
1982	33.8	15.7	2.8	19.3	1.9	33.6	12.7	19.1	51.2	17.3
1983	37.6	11.3	3.4	18.2	2.3	22.3	14.9	17.3	58.2	13.6
1984	41.8	11.0	4.0	20.0	2.6	16.3	16.5	10.6	64.9	11.6
1985	44.4	6.2	4.6	13.5	2.8	5.3	18.5	12.1	70.2	8.1
1986	46.2	4.2	5.2	14.9	2.9	6.0	21.9	18.4	76.3	8.7
1987[c]	47.8	3.5	6.3	21.0	3.1	6.8	25.5	16.5	82.8	8.5

[a] Includes home health services, skilled nursing, and hospice care.

[b] Includes physician, suppliers, independent laboratory, home health services, and group prepayment practices.

[c] All payments are reported as incurred expenditures.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary.

Since 1980, the inflation-adjusted growth rate of Medicare expenditures per enrollee has fallen primarily because of the slower growth in hospital expenditures (see Figure 5-2). In 1986, the growth rate for inpatient hospital expenditures became negative. The rate of growth was −0.3 percent in 1986, and dropped to −1.5 percent in 1987. It is projected to increase slightly, to −0.4 percent, in 1988. While expenditures for hospital care have declined, largely because of falling admission rates, hospitals are facing rising costs per case for the remaining inpatient population. These higher costs per case are discussed in Chapter 2.

Changes in Medicare Part B Expenditures

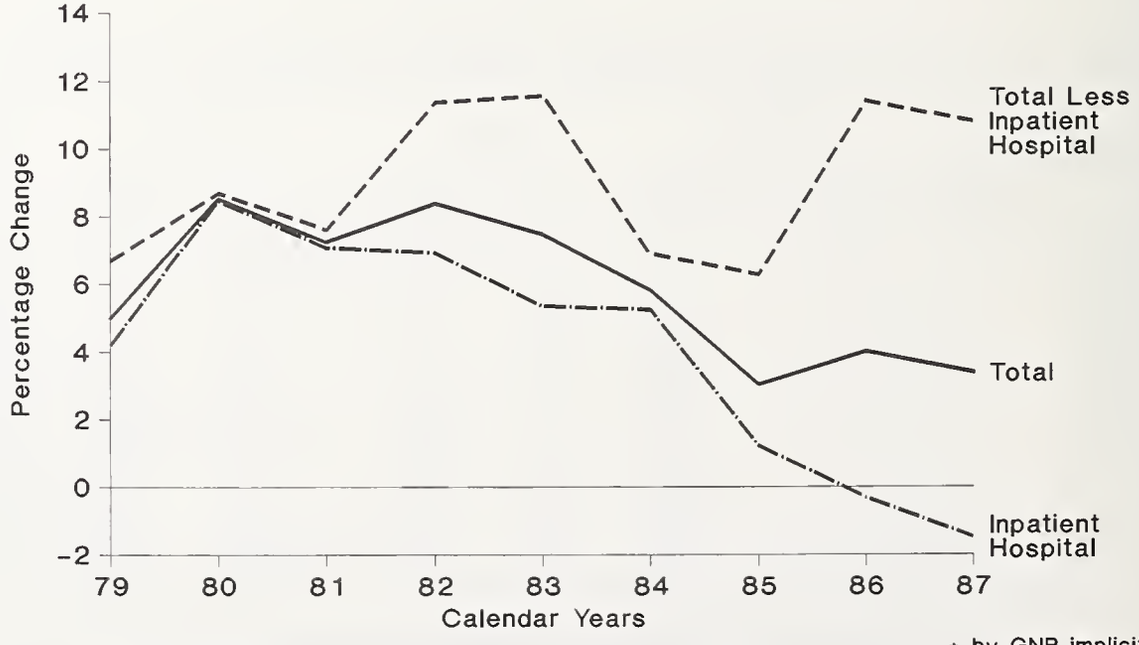
PPS provides incentives for moving some services provided during an inpatient stay to outpatient settings. In addition, other changes—advances in technology and new medical practice patterns, for instance—provide similar impetus. These factors are discussed more fully in Chapter 6. Because outpatient services are covered under Part B, expenditures for Part B are increasing.

Two factors are largely responsible for the increase in expenditures for outpatient services. First, a greater number of procedures are being performed in ambulatory rather than inpatient hospital settings, thereby reducing hospital admissions. This change in site of care has resulted in a shift in facility payments from Part A to Part B. Changes in the beneficiary use of ambulatory care settings and sub- and post-acute care services are discussed in Chapter 1.

Second, services that used to be provided as part of a hospital admission increasingly are delivered in an ambulatory setting before or after the hospital stay. Non-physician services related to an inpatient stay, but performed in an ambulatory setting, result in a shift in billing from Medicare Part A to Part B. Suppliers, ambulatory surgery centers, independent laboratories, diagnostic centers, and hospital outpatient departments bill for such services, as do physicians.

Part B expenditures include spending for physician (65 percent) and other medical services (11 percent), which are paid on a reasonable charge basis, and for hospital outpatient services (20 percent), which are usually paid on the basis of cost. The remaining 4 percent includes spending for group practice prepayment plans and home health services.

Figure 5-2. Annual Growth Rates of Inflation-Adjusted* Medicare Expenditures per Enrollee - Total, Inpatient Hospital, and Total Less Inpatient Hospital



* by GNP implicit price deflator

Source: Office of the Actuary, Health Care Financing Administration, as deflated by ProPAC.

Growth in outlays for physician services constitutes the bulk of the increase in Part B spending. Higher physician costs per enrollee are the combined result of increases in the fees paid per service (price) and increases in the quantity or intensity of services provided (volume). Moreover, there is a longstanding trend in which volume increases have a major effect on the overall cost increases for physician services.

Spending for hospital outpatient services increased 21 percent in 1987. There is strong evidence that the increase in surgical and medical procedures performed in outpatient settings has had a significant impact on outpatient expenditures. However, it is unclear what portion of the increase in expenditures is due to non-physician services related to an inpatient stay.

Even though they constitute the largest share, physician services are a declining proportion of Part B reasonable charges. In contrast, the proportions of Part B spending for durable medical equipment, diagnostic, and clinical laboratory charges are increasing (see Table 5-4). Physician medical and surgical services accounted for 64.1 percent of Part B reasonable charges in 1983, falling to 61.4 percent in 1985. Durable medical equipment accounted for 9.2 percent of reasonable charges in 1983, rising to 11.0 percent in 1985. Likewise, the annual increase in reasonable charges for non-physician services was considerably higher than the increase for physician services between 1982 and 1985. Again, it is not possible to determine what portion of the increase is attributable to changes in the site of service or to other contributing factors.

Part B Premium Increase

The impact of PPS on Part B is of interest because of the large increase in the Part B premium from 1987 to 1988. The Commission is interested in knowing how much of the premium increase is related to movement of services and costs from inpatient to ambulatory settings. Another concern is whether Medicare's costs are greater for a surgical or medical procedure delivered in an ambulatory site compared with the inpatient hospital setting.

The yearly premium for Medicare Part B increased by 38.5 percent, from $215 in 1987 to $298 for 1988 (see Table 4-1, Chapter 4). Twenty-two percent of the premium increase was designed to restore the Medicare Part B trust fund reserve to an actuarially sound level. The remaining increase was attributable to growth in program expenditures. ProPAC and others believe the large premium increase for 1988 is necessary to begin improving the Part B trust fund's balance and reserve. The actual 1988 premium, published in the September 1987 *Federal Register*, was higher than the original estimate of $274 announced nine months earlier.

The Commission believes the movement of costs for facility payments and non-physician services from Part A to Part B may be a significant contributor to the growth in Part B spending. However, data limitations prevent distinguishing increases in Part B expenditures due to changes in the site of care from increases due to other factors, such as changes in volume and charges.

Table 5–4. Medicare Part B Reasonable Charges, by Service Category (In Percent)

	Calendar Year					
	1983		1984		1985	
Service Category	Percent of Charges	Percent Increase	Percent of Charges	Percent Increase	Percent of Charges	Percent Increase
Medical/surgical	64.2%	16.7%	63.1%	9.8%	61.4%	10.5%
Diagnostic	7.7	24.7	7.9	15.2	8.1	16.4
Clinical laboratory	8.7	22.0	9.0	15.3	9.2	16.8
Durable medical equipment	9.2	27.1	9.9	20.3	11.0	26.9
Other*	9.9	18.3	9.8	10.8	9.6	11.0

* Includes anethesiology, assistance at surgery, consultation, radiology treatment, and other services.

SOURCE: ProPAC computation of data provided by the U.S. Department of Health and Human Services, Health Care Financing Administration, Bureau of Data Management and Strategy, Division of Information Analysis.

Medicare Payments for Procedures in Inpatient Hospital and Ambulatory Settings

The Commission is interested in investigating the cost consequences of moving services from the inpatient to ambulatory settings. One way to evaluate this is to compare charges, costs, and Medicare payments for a given procedure by site of care. Cataract extractions and intraocular lens (IOL) implantations are illustrative because of the dramatic shift in these procedures from inpatient to ambulatory settings. Moreover, they lead all other ambulatory procedures in both volume and aggregate charges.

In fiscal year 1985, cataract and IOL procedures in the hospital outpatient department accounted for four of the ten highest-volume and nine of the ten highest-charge ambulatory surgery procedures for Medicare beneficiaries.[2] The procedure with the highest total mean billed charge was "insertion of IOL at time of cataract extraction." In 1985, about 80 percent of these procedures were performed in ambulatory settings. Of these, 76 percent were performed in hospital outpatient departments (OPDs), 15 percent in ambulatory surgery centers, and the rest in physicians' offices or other ambulatory sites.

Medicare expenditures for IOL insertion at the time of cataract removal include payments for the physician service, facility, and prosthetic device (the lens). The average physician charge of $1,570 varies little across both inpatient and ambulatory sites. Average charges and costs for the facility, including the prosthesis, were higher in the inpatient setting when compared to the hospital outpatient department. Medicare average payments were likewise higher for inpatient cataract procedures compared with hospital outpatient and other ambulatory procedures (see Table 5-5).[3]

The relationship between Medicare payments for cataract and lens procedures in alternative sites differs from a 1986 report by the HHS Office of the Inspector General. The OIG's report indicated that the average Medicare payment (for facility and lens) for cataract procedures performed in the outpatient site exceeded the payment for the hospital inpatient site.

Table 5–5. Charges, Costs, and Medicare Payments for Cataract Extraction with Intraocular Lens Insertion, by Site, 1987*

Site	Average Charge	Average Cost	Average Payment
Hospital inpatient	$2,568	$1,832	$1,658
Hospital outpatient	2,572	1,826	1,461
Ambulatory surgery center	N/A+	N/A+	787

* The procedures used to derive statistics in this table are described in Note 3, Chapter 5. All figures include intraocular lens prostheses.

+ Charge and cost data are not yet available for ambulatory surgery centers.

SOURCES: ProPAC estimates based on 1986 MEDPAR data and on Brandeis University calculations (under the current cooperative agreement with the U.S. Department of Health and Human Services, Health Care Financing Administration, Office of Research and Development) using the 1985 5 percent hospital outpatient bill skeleton file.

Differences in the data source account for the discrepancy between the OIG's and ProPAC's results. The OIG used 1985 data from a sample of facilities and physicians in six states. The source of ProPAC's OPD facility charge data, from which payments were derived, was the HCFA 5 percent sample of hospital outpatient department visits for calendar year 1985. ProPAC's inpatient data source was the fiscal year 1986 MEDPAR data. ProPAC used current estimates from HCFA and CBO to calculate the IOL costs and payments.

In fiscal year 1988, the Medicare payment for certain surgical procedures performed in the outpatient facility changed to a blend of 75 percent OPD and 25 percent ASC rate. For fiscal year 1989, this blend will change to 50 percent OPD and 50 percent ASC.[4] Because most ambulatory cataract and IOL procedures in 1985 were performed in OPDs compared with 15 percent in ASCs, the change in the blended rate indicates Medicare payments for this procedure are expected to decline in 1988 and 1989.

Changes Affecting Medicare Program Expenditures

In addition to the introduction of PPS, other legislative, regulatory, and administrative changes in the Medicare program during the 1980s significantly affected both the use of services by Medicare beneficiaries and total program expenditures. These actions can be grouped into three broad areas: entitlement changes, benefit expansions, and coverage decisions and other administrative actions.

Entitlement changes enacted during the 1980s varied with respect to their impact on expenditures for Part A and Part B services. Some changes resulted in program savings. One such example was establishing the secondary liability status of Medicare for the "working aged." This change resulted in fiscal year 1987 cost savings of approximately $900 million for both Parts A and B of Medicare.[5] Other program changes increased service utilization and program expenditures. One example of such a program enhancement was the liberalization of the disability entitlement.

Some of the more significant benefit changes enacted during the 1980s included expanded benefits for hospice care, outpatient and ambulatory surgery, and home health. The growth in alternative sites of care is discussed in Chapter 6.

Many important coverage decisions occurred through administrative actions, such as coverage transmittals—notices from HCFA to the fiscal intermediaries and Part B carriers regarding benefit changes. These coverage actions do not require HHS to promulgate regulations. Neither the Department nor CBO assess their overall budgetary impact. Among the new benefits covered through administrative actions—in these cases decisions to cover new services—are magnetic resonance imaging, estimated by ProPAC to have an annual impact of $9.8 million, and percutaneous transluminal coronary angioplasty, with an estimated annual impact of $48 million.

STATE COST-CONTAINMENT EFFORTS

States have established a variety of programs aimed at containing health care costs. These programs often focus on Medicaid expenditures, although some affect all payers.

State Use of DRG-Type Payment Systems[6]

Medicaid expenditures for inpatient hospital care are paid on the basis of DRGs in 14 states: Iowa, Michigan, Minnesota, Montana, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Washington, New Jersey, and Connecticut. While Washington's program covers only Medicaid, plans call for conversion to an all-payer system. New Jersey and Connecticut already have all-payer systems, mandating all third-party payers to pay on the basis of DRGs. New York implemented its DRG-based reimbursement system on January 1, 1988. Colorado and Wisconsin are scheduled to implement DRG-based reimbursement systems in the near future.

In addition to using the DRG classifications, these states have adopted many of the provisions of Medicare's prospective payment system. Significant variations exist, however. Minnesota, for example, pays for cases on the basis of 39 diagnostic categories. South Carolina uses DRGs to pay for 234 of the most common types of cases. Six different per-diem rates are used for the remaining cases. Most of the states exclude psychiatric and rehabilitation hospitals; some also exclude childrens hospitals. South Carolina and Texas do not exclude any hospital types, while Utah recently decided to exclude small rural hospitals.

Payments for basic operating costs are determined three different ways. About one-third of the states pay hospital-specific rates. Another third pay on the basis of peer-group averages. The final third pay a statewide average.

Adjustments to basic payments used in state systems include provisions for capital costs, medical education, outliers, and uncompensated care, or an adjustment similar to Medicare's disproportionate share adjustment. Half of the states pass through capital costs. The rest use either an add-on to the basic payment or include capital costs in the basic payment. Similar methods are used to pay for medical education.

Nine states have outlier policies that pay for both day and cost outliers using a variety of methods. Three states pay for day outliers only and one state for cost outliers only. Texas has no outlier policy. Several states make special provisions for neonates or burn cases. Most states make an extra payment based on the volume of Medicaid or uncompensated care. Only four states have no adjustment of this type.

Medicaid and Capitated Payment Systems[7]

Enrollment of Medicaid recipients in capitated health plans was encouraged with the 1976 HMO amendments in Pub.L. 94-460. These amendments promoted voluntary enrollment of Medicaid recipients in health maintenance organizations (HMOs) and prepaid health plans (PHPs). The

1981 Omnibus Budget Reconciliation Act contained many legislative changes that encouraged greater use of capitated systems to pay for health care services for Medicaid recipients.

In December 1981, 187,000 Medicaid recipients were enrolled in 36 HMOs in 16 states. The number of Medicaid HMO enrollees grew to 803,000 by December 1986, while the number of contracts rose to 125 in 25 states.

PHPs also contract with states to provide services on a capitated basis to Medicaid recipients, but they are exempt from the stricter provisions applicable to HMOs. There are two types of PHPs. One provides services in medically underserved areas; the other includes demonstration, pilot, and research projects. As of December 1981, there were 98,000 Medicaid enrollees covered under 18 contracts in nine states. By December 1986, 218,000 Medicaid recipients were covered by 56 contracts in ten states. Much of this growth can be explained by the inclusion of PHPs in Arizona's demonstration project.

Recent Medicaid Program Initiatives[8]

Provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) and OBRA 1986 allowed states to implement a variety of health care cost-containment programs. These programs generally add services that can be substituted for inpatient care or improve service delivery. Since these initiatives began in 1985, they have taken many forms in various state Medicaid programs. The initiatives implemented in the last year are reviewed in this section.

Many states have second surgical opinion programs, although the program in Iowa was repealed recently and repeal has been proposed in Oregon. Prior authorization for specific services was added to programs in Arkansas, South Carolina, and Montana.

Home health care provisions have allowed for expanded services. Connecticut and Massachusetts, for example, will cover special nursing services provided during home health visits. Wisconsin plans to test the feasibility of purchasing home health and personal care through competitive bids.

Eight states now cover hospice care. Case management, a program that coordinates community resources to provide an alternative to long-term inpatient care, has been added or is planned in ten states. Massachusetts and North Dakota plan to implement case-mix reimbursement for nursing homes within the next two years, and Tennessee is studying this option.

Certificate-of-need (CON) laws have been repealed in many states in the past few years. These laws were originally enacted to prevent hospitals from providing duplicate services that involve capital expenditures and thus increase consumer costs. However, there is no evidence that CON programs systematically have been successful in holding down costs. Five states have implemented sunset dates for capital review programs; many others have raised the review threshold for projects.[9]

EMPLOYER-SPONSORED GROUP HEALTH INSURANCE[10]

Employer-sponsored group health insurance in this country has changed substantially during the 1980s. Employers, purchasing health care coverage for more than 160 million workers and their dependents, have demanded that insurers develop better methods to control the growth of health care costs. The steady growth in the number of providers and the adoption of PPS have encouraged providers to participate in group health plans that stress cost-conscious care. And finally, advances in data processing have improved insurers' abilities to store, retrieve, and analyze information.

These forces have increased employee cost-sharing through higher deductibles, coinsurance, or cost-sharing premiums. The employee, however, has assumed a smaller share of the cost burden when compared to the employer. Enrollment has increased in HMOs, PPOs, and managed fee-for-service programs (conventional health insurance plans with prospective utilization review). Many employers have chosen to self-insure their health benefit plans because of the perceived advantage of greater control over their health benefit costs.

Health Benefit Plan Enrollment

PPOs and HMOs—alternatives to conventional insurance—account for a growing number of

health benefit plans offered to workers. In 1987, 17 percent of employers offered coverage through PPOs and 43 percent through HMOs. Conventional plans are offered by 85 percent of employers. In most cases PPOs substitute for conventional insurance. About 75 percent of employers offering PPO plans do not provide conventional insurance as an alternative. Further, most employers self-insure their conventional plans. Utilization of HMOs and PPOs is further discussed in Chapter 6.

The percentage of employees in HMOs and PPOs grew between 1984 and 1987 (see Table 5-6). In 1987, these alternatives to conventional coverage accounted for about one-quarter of total employee enrollment in health benefit plans. Sixteen percent were in HMOs and 11 percent in PPOs, compared with 1984 enrollments of 6 percent and almost zero, respectively.

Table 5-6. Comparison of Employee Enrollment in Health Plans: 1984 and 1987 (In Percent)

Year	Conventional Plan	HMO	PPO
1984	94%	6%	0%
1987	73	16	11

SOURCE: 1987 Health Insurance Association of America Employer Survey.

Utilization Review Programs

In the past, only retrospective review programs (claims review and medical records audits, for example) were available. Today, prospective review, such as preadmission certification and second surgical opinions, has become an important part of many utilization review programs. These prospective review programs are increasingly included in PPO and conventional plans.

About 45 percent of conventional plans have preadmission certification review programs, and most require review of all admissions. Roughly 51 percent of conventional plans have a mandatory second surgical opinion program. Most plans with second surgical opinion programs require such review before issuing full payment for the expenses of the surgery. The programs have had mixed success at controlling costs, however. Most of the reported savings come from a "sentinel effect"; that is, the more careful prescription of surgery by physicians who realize others will review their opinions. The long-term effects of denying or delaying surgery have not been studied.

PPOs are more likely than conventional plans to include a preadmission certification and a mandatory second surgical opinion program. About 70 percent of PPO plans have preadmission certification review, and 60 percent have mandatory second surgical opinion programs.

The Cost of Group Health Insurance

No clear differences were found in the rate of increase in the cost of health insurance plans among conventional, HMO, and PPO plans. In fact, there was surprisingly little variation in the monthly cost of family coverage by type of plan (see Table 5-7). Conventional plans averaged $202, HMO plans averaged $215, and PPO plans averaged $209.

Table 5-7. Cost of Family Coverage by Type of Health Plan: Average Monthly Contributions by Employer and Employee

Plan	Employer Contribution	Employee Contribution	Total
Conventional	$152	$50	$202
HMO	158	57	215
PPO	145	64	209

SOURCE: 1987 Health Insurance Association of America Employer Survey.

Nearly 75 percent of conventional plans do not require employees to share the premium cost of individual coverage; about half require employees to share the premium cost for family coverage. In these plans, firms pay on average about 75 percent of the premium cost (see Table 5-7). Compared with conventional plans, HMO and PPO plans are more likely to require employees to share in the premium cost for family coverage; firms pay 74 percent of the premium in HMO plans and 69 percent in PPO plans.

The cost of group coverage rose modestly between 1986 and 1987 (see Table 5-8). Increases in health insurance premiums were reported by 42 percent of conventional plans, 50 percent of HMO plans, and 39 percent of PPO plans. These increases ranged from 8 to 12 percent. Between 1987 and 1988, however, the cost of group coverage increased sharply, in excess of 20 percent.

Table 5–8. Changes in Total Group Coverage Premiums, by Type of Health Plan, 1986–1987* (In Percent)

Plan	Percent of Plans with Premium Increases	Median Premium Increase	Percent of Plans with Premium Decreases	Median Premium Decrease
Conventional	42%	10%	13%	8%
HMO	50	8	9	10
PPO	39	12	10	9

* Premiums increased for both employers and employees.

SOURCE: 1987 Health Insurance Association of America Employer Survey.

Between 1986 and 1987, employees' share of the increasing health insurance premiums grew less than the employers' share. Only 22 percent of employees covered by conventional plans faced higher monthly premiums in 1987 compared with 1986 (see Table 5-9). Monthly contributions increased for 37 percent of employees in HMO plans, but only for 29 percent of employees in PPO plans. The net effect of the increasing cost of group coverage and the declining employee share of health insurance premiums is that employers are bearing a greater share of the cost burden.

Future health care coverage of employees is likely to be affected by changes proposed by the Financial Accounting Standards Board (FASB). In 1989, the board intends to issue a rule requiring companies to recognize unfunded retirement health benefits on their balance sheets as a current liability. Because almost all employers finance their health coverage on a "pay-as-you-go" basis rather than carry it on the books as a current liability, the change in FASB rules could seriously weaken employers' balance sheets. Companies would have to charge the cost of health benefits, like pension costs, against income each year.

The problem facing employers is the provision of health coverage to retirees.[11] According to the Bureau of Labor Statistics, about 70 percent of the companies with 100 or more employees provide health care benefits to their retirees. Almost all plans provide retirees up to age 65 with the same benefits as active workers, and 90 percent cover retirees after 65 under a program that integrates private coverage with Medicare. In more than half the companies, those health plans were provided at no premium cost to the retiree.

Employers are expected to respond to the change in the FASB rule in a variety of ways. One may be to offer a defined-contribution plan instead of a defined-health benefit plan. Under a defined-health benefit plan, the employer agrees to provide an employee with a specific level of health coverage regardless of cost. Under a defined-contribution plan, an employer agrees to pay a set amount for health coverage rather than guarantee the benefits of a health plan. If health care costs continue to rise relative to inflation, such action will likely lead to a cut in benefits.

Table 5–9. Changes in Health Insurance Premiums for Employees, by Type of Health Plan, 1986–1987 (In Percent)

Plan	Percent of Employees with Premium Increases	Median Premium Increase	Percent of Employees with Premium Decreases	Median Premium Decrease
Conventional	22%	8%	8%	8%
HMO	37	8	12	17
PPO	29	12	14	11

SOURCE: 1987 Health Insurance Association of America Employer Survey.

CONCLUSIONS

National health expenditures continue to rise unabated, despite efforts aimed at curbing their persistent growth. Some moderate success has been achieved in certain sectors of the health care system. Data presented earlier in this chapter showed that PPS and declining admission rates appear to have contributed to a deceleration in Medicare total hospital expenditures. However, the increase in expenditures in other sectors of the health care system appears to have overwhelmed many of the gains made in the inpatient setting.

Of particular concern is the increase in expenditures for Part B services. Available data suggest that the movement of services from inpatient to ambulatory care settings may be contributing significantly to this increase. A more thorough analysis of the implications of changes in the site of care delivery for Part A and Part B expenditures is needed to fully explore this hypothesis.

In addition to Federal initiatives in health care cost containment, other insurers, both public and private, have been pursuing the goal of containing the growth in health expenditures. Managed care initiatives, enhanced utilization review, and the promotion of alternative care delivery models have been implemented in various forms by state Medicaid programs and by employers. Despite such efforts, these insurers continue to face rising health care expenditures.

Notes to Chapter 5

1. Expressed on an incurred (accrual) basis. Expenditures are recorded for the year in which the medical care service was delivered, not the year in which the bill was paid (cash basis). Different growth patterns would be observed if expenditures were expressed on a cash basis.

2. Statistics from Brandeis University based on data from HCFA Hospital Outpatient Department 5 Percent Sample File, calendar year 1985.

3. The methods and sources of statistics used for Table 5-5 are as follows. Statistics were inflated to 1987 estimates by the medical care component of the consumer price index.

   - *Hospital inpatient:* The charge statistic is based on MEDPAR fiscal year 1986 total charges for ICD-9 procedure codes 13.71 and 13.72. The cost statistic was calculated using hospital-specific ratios of costs to charges (RCCs). The payment statistic was estimated from the fiscal year 1987 DRG weight for DRG 39 (lens procedures). Under prospective payment, IOL payment is included with the inpatient facility payment.

   - *Hospital outpatient*: The charge statistic was derived by Brandeis University using HCFA's Hospital Outpatient Department 5 Percent Sample File, calendar year 1985, using mean billed charges for ICD-9 procedure code 13.71. The cost statistic was calculated using an RCC of 0.64. The payment statistic is 80 percent of the cost statistic. Included in the figures presented in the table are the average IOL charge, cost, and payment, respectively. The IOL figures are based on an average IOL cost of $450, computed from an estimated range in IOL costs of $200 to $700.

   - *Ambulatory surgery center*: Charge and cost data are not available. The payment statistic includes a facility payment based on the Medicare Ambulatory Surgery Group 4 payment rate as of July 1987, applied to a multiple procedure (i.e., cataract extraction plus IOL insertion). It also includes an IOL payment based on figures from the Congressional Budget Office.

4. Eye and ear hospitals will remain on the 75 percent/25 percent blended rate.

5. Bureau of Program Operations, U.S. Department of Health and Human Services, Health Care Financing Administration.

6. *Use of DRGs by State Programs and Blue Cross/Blue Shield*, prepared by Research Triangle Institute under ProPAC contract No. T47538315, 1987.

7. *Data on Alternative Financing and Delivery Systems*, prepared by InterStudy under ProPAC contract No. T47539288, February 1, 1988.

8. Debra J. Lipson, Rhona S. Fisher, and Constance Thomas, *The Major Changes in State Medicaid and Indigent Care Programs, January-August 1987* (Washington, DC: The Intergovernmental Health Policy Project, The George Washington University, 1987).

9. "Deregulation Spurs Market Information Demand," *Hospitals* 61(24): 58, December 20, 1987.

10. *Private Sector Cost Containment Efforts*, prepared by the Health Insurance Association of America (HIAA) under ProPAC contract No. T47537552, February 1988. In 1987 HIAA surveyed 771 employers randomly selected from the Health Care Financing Administration's *Health Insurance Benchmark Study*. The sample frame included private and public employers, ranging from one-person firms to corporations and local governments employing over 250,000 people. The survey provided national estimates of health insurance plans in three areas: enrollment in and availability of alternative health plans, utilization review, and the cost of group health insurance for both the employer and the employee. Selected information from the HIAA survey is discussed in this chapter.

11. Swoboda, F., "New Rule May Cause Cut in Health Coverage." *Washington Post*, H5, April 3, 1988.

Chapter 6

Changes in Health Care Financing and Delivery

Chapter 6

Changes in Health Care Financing and Delivery

Substantial changes are taking place in the delivery and financing of U.S. health care. Various new financing arrangements now in use place tough utilization controls on providers. Many of these financial arrangements involve capitated payment and managed care. Alternative sites of care are being developed to provide specialized services increasingly in facilities outside the inpatient hospital setting. Specialty care centers are also being established to provide complete physician and facility services to targeted groups of patients. In addition to new delivery and financing arrangements, changes are occurring in the sites of service delivery. These sites include PPS-excluded facilities, skilled nursing facilities, and home health care.

Some observers suggest that these changes have resulted from PPS incentives. Others maintain that these trends may have begun with the implementation of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). Given the visibility of the Medicare program in U.S. health care, these may seem to be logical conclusions. However, most of the changes were occurring before the enactment of TEFRA or PPS. In particular, the trend toward providing more care in the outpatient setting and relying less on hospital inpatient settings was well under way in the early 1980s. New financing arrangements were likewise rapidly attracting new patients and supporters.

ProPAC is particularly concerned about how these new financing and delivery modes will affect the growth of national health and Medicare expenditures, as well as beneficiary out-of-pocket costs. In addition, the Commission continues to be concerned about access to and quality of care. Another critical concern is the extent to which changes in site or style of care represent substitution of more efficient care, addition of new types of care, or more care in different settings. Other challenges lie ahead in the areas of long-term and uncompensated care.

In this chapter, the Commission presents information on other recent changes in the health care system. The growth of alternative financing mechanisms, such as HMOs and preferred provider organizations (PPOs), is presented first. Alternative sites of care are then described. Several other important health system issues, including services provided in facilities covered by Medicare but excluded from PPS, noncovered long-term care, and the problems of uncompensated care are discussed. Finally, the Commission comments on the need for further policy analysis and review of these issues.

ALTERNATIVE FINANCING MECHANISMS[1]

New alternative financing arrangements have emerged in recent years. These include capitation plans, such as HMOs. Until passage of TEFRA, Medicare did not encourage HMOs to enroll its beneficiaries. However, after implementing regulations were issued, the growth of HMOs increased. Since 1983, PPOs, another alternative financing arrangement, have undergone dramatic growth.

The Commission believes these efforts should be encouraged. But they should be carefully monitored, especially in areas such as cost, quality, and access.

Health Maintenance Organizations

Health maintenance organizations offer prepaid comprehensive health care coverage through participating providers for hospital and physician services. The rapid growth of both plans and enrollees seen from 1984 through 1986 seemed to level off in 1987 (see Table 6-1). The 662 HMOs in

Table 6–1. Growth in HMOs 1981–1987*

Year	Number of Plans	Percent Change	Enrollment	Percent Change
1981	260	---	10,497	---
1982	269	3.5%	11,606	10.6%
1983	290	7.8	13,643	17.6
1984	337	16.2	16,743	22.7
1985	480	42.4	21,052	25.7
1986	626	30.4	25,777	22.4
1987	662	5.8	28,587	10.9

* As of December of each year, except 1987 numbers, which are calculated as of June 1987.

SOURCE: InterStudy under contract to ProPAC.

operation as of June 1987 represented a 5.8 percent increase over December 1986.

HMOs fall into one of four general categories. The staff model consists of salaried staff providers in a single HMO unit. The group model predominantly contracts with one independent group practice. The network model generally contracts with two or more independent group practices. The independent practice association (IPA) model, which contracts with one or more associations of physicians, is organized largely around solo or single specialty practices.

HMOs must be licensed by the state in which they operate. Some also seek Federal qualification status. To become federally qualified, an HMO must meet requirements regarding the health benefits offered, the rating method used, financial solvency, and the makeup of its board of directors. It must also comply with certain reporting requirements. If there are federally qualified HMOs in an area, local employers with more than 25 employees must offer at least one HMO in each category as an optional health benefit plan. For instance, if there are three federally qualified IPAs in an area, the employer must offer one of the IPAs to its employees.

IPAs have grown rapidly since 1981. As of June 1987, they represented 63 percent of all HMO plans and 40 percent of HMO enrollees. The number of staff and group model HMOs has declined significantly, to 21 percent of the total. These models serve 36 percent of HMO enrollees. Network model HMOs make up 16 percent of all HMOs and have 24 percent of all enrollees.

For-profit HMOs accounted for two-thirds of the 662 HMOs in operation in 1987, yet they covered only 45 percent of HMO members. National firms —organizations that own or operate HMOs in two or more states—account for 49 percent of all operating HMOs. This represents a substantial growth over prior years, indicating a possible concentration of HMO providers. A majority of national firms are for-profit.

HMOs have shown recent financial weakness. A survey of 87 percent of all HMOs in the United States indicated nearly three-fourths lost money in 1986, compared with one-half in 1985. In 1986, the current liabilities of 47 percent of HMOs exceeded their assets.

Medicare and HMOs

Until 1982, the Medicare program did not encourage HMO enrollment of beneficiaries. In fact, the law had severely limited the extent of risk contracting allowed between HMOs and Medicare, thus actively discouraging most HMOs from seeking Medicare enrollees.[2] TEFRA changed this by giving HMOs incentives to enroll Medicare beneficiaries. Under this law, plans could receive a set, prepaid amount per enrollee to provide benefits, regardless of the actual costs incurred. Federally qualified HMOs are entitled to apply for these Medicare risk contracts with HCFA. Further, TEFRA regulations issued in 1985 expanded the option of risk contracting beyond traditional HMOs to include plans that become federally certified as competitive medical plans (CMPs).[3] Although CMP requirements are less stringent than HMO qualification requirements, most CMPs are traditional HMOs.

In addition to risk contracting plans, Medicare beneficiaries receive HMO services through cost contracts, health care prepayment plan (HCPP) contracts, and supplemental benefit packages. These different mechanisms have become less popular since the initiation of TEFRA risk contracting, but they are still available.[4]

The growth of Medicare beneficiary enrollment was greatest between 1985 and 1986, when final regulations implementing TEFRA risk contracts were issued (see Table 6-2). As of June 1987, 1.6 million Medicare beneficiaries were enrolled in

178 HMOs, 150 of which were approved for TEFRA risk contracts. Growth in HMO enrollment slowed somewhat between June 1986 and June 1987. Further, recent data suggest that total Medicare enrollment and the number of Medicare HMOs declined as of January 1988.

OBRA 1987 authorized the Secretary to establish Medicare Insured Group (MIG) demonstration projects that allow risk contracting with such sponsors as employers and unions. The Act authorized spending up to $600 million each year for a maximum of three MIG projects. Under the MIG demonstrations, an organized body such as an employer assumes the risk for supplying health care coverage to elderly beneficiaries, usually retired employees. Like risk-contracting HMOs, the MIG receives direct payment from the government. With some limitations, this payment may be based on the experience of the group. Beneficiary enrollment in MIG projects is voluntary, and many of the CMP regulatory requirements, such as quality review and appeals rights, apply. One MIG demonstration is currently under way between HCFA and the American Life Insurance Corporation. Others may begin in late 1988.

Preferred Provider Organizations

Preferred provider organizations typically establish a contractual relationship with providers to offer services at a discounted price to a particular group of individuals. No PPO is exactly like another, even though all plans offer discounted care when plan providers are used.

As of December 1987, 608 PPOs were operating, a 15 percent increase since 1986 and a 490 percent increase since 1983. This dramatic growth can be attributed to the fact that PPOs are relatively new and still developing. PPOs are located in 43 states, the District of Columbia, and Puerto Rico. PPO enrollment statistics reflect the number of people eligible for PPO benefits rather than the number who actually use them. Current estimates of PPO enrollees are as high as 31 million. Forty-five percent of PPOs are sponsored by physicians, hospitals, and joint ventures. Blue Cross/Blue Shield and other insurers sponsor most of the remaining PPOs.

Table 6–2. Total Medicare Enrollment in HMOs, 1981–1987*

Year	Total Enrollment	Percent Change	Number of Risk Contracts	Percent Change
1982	430,936	---	70	---
1983	492,035	14.2%	80	14.3%
1984	671,186	36.4	105	31.3
1985	848,464	26.4	102	-2.9
1986	1,256,309	48.1	175	71.6
1987	1,573,518	25.2	178	1.7

* As of June of each year.
SOURCE: InterStudy under contract to ProPAC.

ALTERNATIVE SITES OF CARE[5]

Alternative sites of care have proliferated in recent years. Generally the sites are independent or free-standing facilities offering an alternative to hospital inpatient settings. Several factors have led to the growth of alternative sites, including advances in medical technology, changes in practice patterns, and increases in pressures by third-party payers to contain costs.

For example, advances in anesthesiology and new devices like lasers and fiber optic endoscopes have stimulated growth of alternative sites. Acceptance of these technologies by both physicians and patients has accelerated in the past five years. This is reflected in changing practice patterns and demand. As a result, third-party payers have begun to emphasize and promote movement to non-inpatient sites through reimbursement reform.

Growth in delivery of care in alternative sites was especially intense during the early 1980s. This trend coincided with the implementation of PPS. Without this trend, the health care industry might not have been in a position to respond to PPS' strong incentives to limit inpatient hospital care.

Many questions about the policy implications of alternative sites of care remain unanswered. Foremost is whether services in alternative sites will, overall, be more or less costly. Available evidence suggests that certain procedures are delivered at a lower cost and with greater convenience in an ambulatory free-standing center. Nevertheless, there are lingering questions about whether these services will be substituted for costlier procedures or will increase the volume of services provided. The impact on beneficiary liability and the effect of

increased competition also need to be addressed. In addition, the appropriateness of using alternative sites for certain patients who may require hospitalization still needs to be assessed.

ProPAC has reviewed information about many alternative sites of care, including hospital outpatient departments; other ambulatory clinics and facilities; ambulatory surgery, diagnostic imaging, cancer, dialysis, women's health, and health promotion and prevention centers; and home health and hospice care. An overview of changes in some of these important alternative sites follows.

Hospital Outpatient Care

Hospitals have developed many outpatient-based services. The proportion of hospital services provided on an outpatient basis and the percentage of hospital revenue generated by outpatient services have grown rapidly since the early 1980s. Table 6-3 illustrates the growing proportion of hospitals providing alternative services from 1980 to 1986. For instance, in 1986, almost 87 percent of hosptials provided ambulatory surgery, compared with 65 percent in 1980. The amount of outpatient revenue has also increased during recent years. Additional information on outpatient services and revenue is provided in Chapters 1 and 2.

Ambulatory Surgery

Many surgical procedures can be performed on an outpatient basis in a hospital outpatient department or at a separate, free-standing ambulatory surgery center. Most ambulatory surgery is performed in OPDs, although there has been a remarkable growth in both the number of ASCs and the operations performed at these sites since 1983. Between 1983 and 1987, ASCs more than tripled, increasing from 239 to 786, while surgeries performed in these settings rose fourfold to over 1.5 million. Although ASCs may be affiliated with hospitals, they are separate from a hospital's OPD. In 1986, nearly 75 percent of all centers were independent, 17 percent were part of a corporate chain, and 9 percent were affiliated with a hospital. There was a fourfold increase in surgery center revenue between 1983 and 1986.

Table 6–3. Hospitals Offering Alternative Services, 1980 and 1984–1986 (In Percent)*

	Percent of Hospitals Providing the Service			
Type of Service	1980	1984	1985	1986
Long-term care	9.4%	14.5%	17.4%	---
Home health care	10.5	20.2	27.2	32.4%
Hospice	5.8	9.8	11.7	13.5
Outpatient	---	45.3	49.4	59.8
Ambulatory surgery	65.4	83.6	86.0	86.8

* Percent of 5,691 community hospitals; community hospitals defined as all non-Federal, short-term general and other specialty hospitals.

SOURCE: ProPAC analysis of American Hospital Association Annual Survey data.

Other Alternative Sites of Care

Diagnostic imaging centers are free-standing facilities that are usually privately owned and provide imaging services, such as computed axial tomography (CAT) scans, used in diagnosing a patient's condition.[6] Such centers are generally associated with a hospital, but often are located outside the hospital's principal physical structure. The centers are relatively new, and little data are available on them. The AHA's 1986 survey of 2,200 hospitals found that 64 percent offered diagnostic imaging services, generally on an ambulatory basis. Another 6 percent planned to offer these services in the future.

Free-standing cancer centers vary greatly, depending on the type of services offered. Among these services are radiation therapy, chemotherapy, surgical oncology, diagnostic workshops, cancer screening, cancer prevention, psychological and nutritional counseling, and rehabilitation therapy, along with other diagnostic, educational, and support services. The number of these centers has grown from fewer than 30 in 1980 to more than 115 in 1987. Data on the use and cost of services delivered specifically in cancer centers are not available.

Dialysis centers provide services to people who have end stage renal disease (ESRD) and require dialysis treatment. Between 1981 and 1987, the number of dialysis centers increased by 45 percent largely because of a 95 percent increase in independent facilities between 1981 and 1986. In 1987, Medicare outlays for ESRD beneficiaries were $2.7 billion, a 62 percent increase over 1982.[7] The number of beneficiaries served increased 68 percent during the same period, from 75,100 to 126,300.

Because of their diversity, women's health centers are not easily defined. Services most frequently offered in these facilities include physician referrals for obstetrics and gynecological services, maternity support groups, counseling, and breast clinics. A recent AHA study of 2,200 hospitals indicated that services offered by women's health centers are ranked number one on the list of new services being planned by hospitals. Of the hospitals surveyed, 26 percent indicated that they would offer women's services in the future. Like diagnostic imaging centers, women's centers are often established as separate legal entities, although they are associated with the hospital.

PPS-Excluded Hospitals and Units

Generally, before PPS was implemented hospitals had no financial reason to characterize themselves as rehabilitation, psychiatric, long-term, or pediatric institutions. Although TEFRA provided financial incentives for psychiatric hospitals to seek exclusion, PPS excluded these hospitals, along with distinct-part rehabilitation and psychiatric units, from the system. These facilities remained on cost-based reimbursement, subject to an annual rate-of-increase limit. PPS, and to a lesser extent TEFRA, gave these hospitals financial incentives to apply for exclusion. Since PPS implementation, the number of excluded hospitals and units has grown (see Table 6-4).

Growth was not uniform across hospitals and unit types, however (see Figure 6-1). Rehabilitation hospitals and distinct-part units have experienced the largest growth. In fiscal year 1987, 87 rehabilitation hospitals and 525 units were excluded from PPS. These hospitals and units increased by 77.6 percent and 70.5 percent, respectively, from fiscal year 1984 to 1987. In fiscal year 1987, 576 psychiatric hospitals and 969 distinct-part units qualified for exclusion under PPS—an increase of 31.2 percent for hospitals and 34.2 percent for such units since fiscal year 1984. On the other hand, long-term facilities have increased by only 5 percent since 1984, with 88 hospitals qualifying in fiscal year 1987. Finally, children's hospitals have increased by 19.1 percent, from 47 to 56 since fiscal year 1984.

New exclusions under PPS and TEFRA explain part of this growth; that is, a number of these facilities already existed but were only recently granted the exclusion. The significant increase in psychiatric and rehabilitation facilities, however, represents actual growth in the number of hospitals.

POST-ACUTE CARE SERVICES[8]

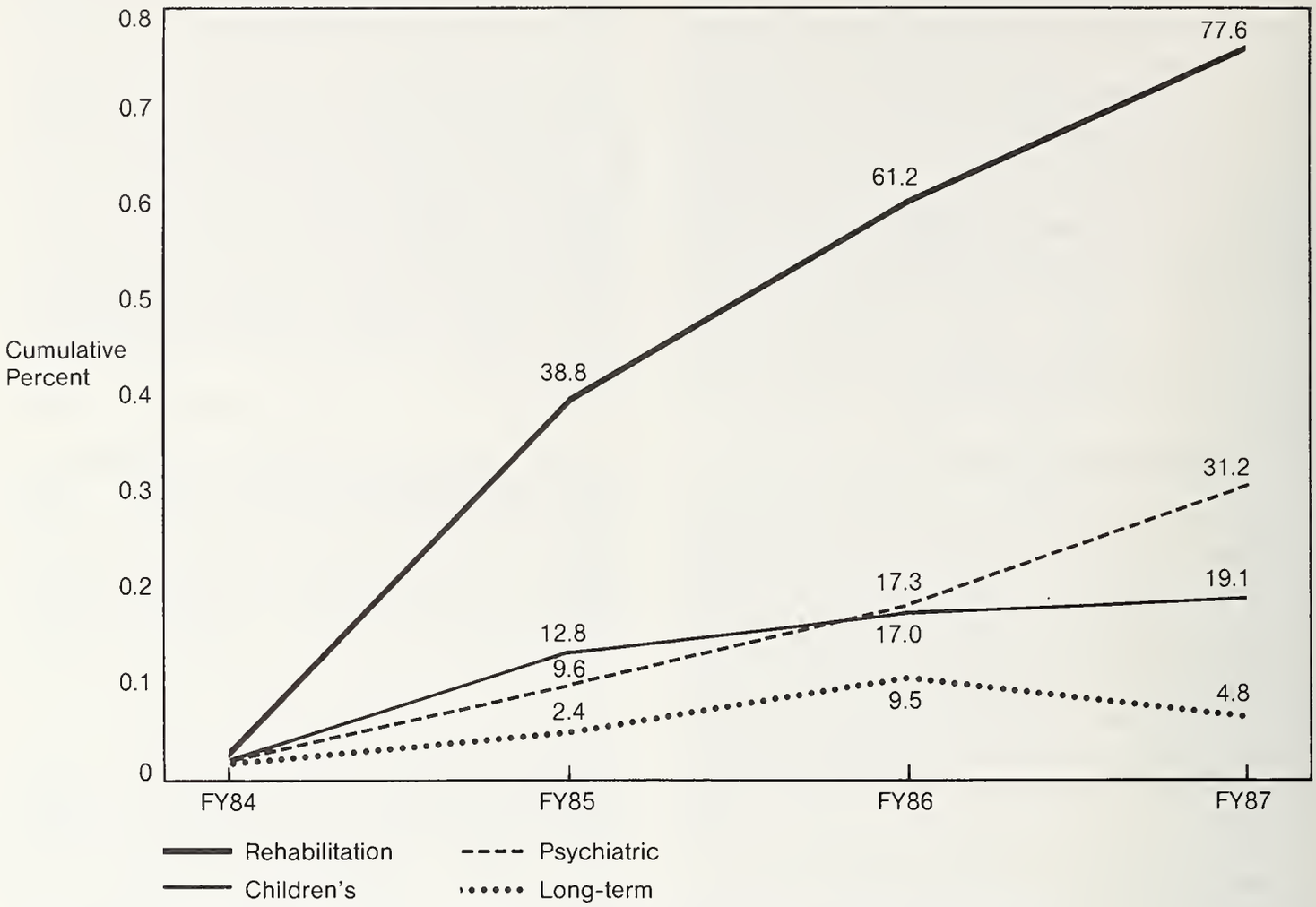
Decreasing length of stay under PPS has led to concern about the provision of post-acute services. PPS incentives and changes in practice patterns have resulted in earlier patient discharge, as discussed earlier. This section highlights recent changes in Medicare post-acute care services: skilled nursing facility (SNF), home health, and hospice care. Although these services appeared to increase in the early years following PPS implementation, growth rates in Medicare-covered home

Table 6–4. Growth in Excluded Hospitals and Units: Fiscal Years 1984–1987

	Number				Percent Change
Facility	FY84	FY85	FY86	FY87	FY84–87
Hospitals					
Psychiatric	439	481	515	576	31.2%
Rehabilitation	49	68	79	87	77.6
Long-term care	84	86	92	88	4.8
Children's	47	53	55	56	19.1
Total	619	688	741	807	30.4
Units					
Psychiatric	722	733	906	969	34.2
Rehabilitation	308	386	473	525	70.5
Total	1,030	1,119	1,379	1,494	45.0

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Health Standards and Quality Bureau, December 30, 1987.

Figure 6-1. Cumulative Percentage Growth in PPS-Excluded Hospitals, 1984-1987



SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration

health care (HHC) and SNF services have fallen sharply in more recent years.

The Commission believes this situation should be carefully monitored. If post-acute care benefits, especially SNF and home health, are not available to beneficiaries who need them, the value of the program is diminished. The Commission plans to intensify its monitoring and analysis of these changes in the coming year.

Skilled Nursing Facility Services

Skilled nursing facility care is covered under Medicare for up to 100 days following hospitalization for persons needing daily skilled nursing or skilled rehabilitation services. Medicare does not cover intermediate or custodial nursing home care. Medicare covers only about 2 percent of all nursing home care.

Since 1983, Medicare outlays for SNF care have increased. In fiscal year 1986, HCFA reported SNF outlays of $607 million, a 5.6 percent increase since 1985 and a 20.2 percent increase since 1983. However, CBO estimates of outlays for SNF care differ. CBO estimates outlays of $565 million in 1986, a 1 percent decrease since 1985, and only a 10.8 percent decrease since 1983. CBO attributes this decline in the growth rate to decreasing lengths of stay and admissions, discussed below. The rate of increase in outlays in recent years, however, is close to the rate of inflation.

SNF utilization has decreased since fiscal year 1986, as indicated by the number of Medicare admissions and covered bed days (see Table 6-5). Medicare admissions to SNFs increased from fiscal years 1983 to 1985, from about 552,000 to 627,000. However, they have decreased since then to roughly 424,000 in 1987. In 1983, SNF total Medicare-covered days exceeded roughly 9.1 million. In 1986 they were estimated at 7.7 million, a 14.9 percent decrease since 1983.[9]

These trends indicate that while expenditures are rising, both the number of beneficiaries receiving Medicare-covered SNF service and the number of covered days are declining. It has been suggested that stringent administrative controls have resulted in less coverage of SNF care by Medicare. A study of subacute care found that the application of coverage guidelines continues to vary widely, suggesting that the SNF benefit is not uniformly available.[10] The Commission is interpreting these data cautiously, however, because the apparent decrease in admissions may also be influenced by HCFA claims processing or a change in the definition of admissions, rather than an actual drop in the number of Medicare beneficiaries admitted to such facilities. The Commission will continue to monitor trends in this area.

Home Health Care

Home health care is another important benefit available to Medicare beneficiaries. The definition of home health care varies, but for Medicare purposes it is defined as skilled nursing and other therapeutic services, such as physical therapy, furnished in a beneficiary's home. Major problems are associated with the administration of this benefit, including lack of uniform availability.

Table 6-5. Trends In Medicare SNF Admissions and Covered Days, 1983-1987

Fiscal Year	SNF Admissions	Percent Change	Covered Days (in thousands)	Percent Change
1983	552,198	---	9,100	---
1984	592,012	7.2%	9,210	1.2%
1985	626,591	5.8	8,071	-12.4
1986	528,406	-15.7	7,742	-4.1
1987	424,048	-19.7	NA*	NA*

* NA = not available.

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Medicare Statistical Systems, Current Utilization Services Table 8, 1987.

Widespread concern led Congress to enact important changes in home health services in OBRA 1987. These changes were designed to improve quality of home health care. The law establishes new conditions of participation and survey procedures for home health agencies. It broadens the use of sanctions and civil monetary penalties against home health agencies. In addition, it creates exceptions to the requirement that an individual be confined to the home to be eligible for HHC.

HCFA statistics show that, from fiscal year 1981 to 1984, the number of HHC visits increased each year. But after 1984, visits decreased, falling from about 40.3 million in 1985 to 38.6 million in 1986 (see Table 6-6). The total number of persons served increased slightly, from 1.35 million to 1.6 million over the 1983 to 1986 period. The number of visits per user decreased from 27 in 1983 to 24 in 1986.

Despite the drop in visits, total Medicare outlays have continued to rise although at a slower rate each year. HCFA estimates Medicare home health outlays of $2.5 billion both in 1986 and in 1987. This compares with outlays of $2.3 billion in 1985, $1.9 billion in 1984, and $1.5 billion in 1983. An obvious leveling off is observed. However, CBO estimates of home health care outlays differ. CBO estimates outlays of $2.2 billion in 1986 compared to $2.1 billion in 1985. This slower growth rate was attributed to changes in the administration of the benefit.

In addition, preliminary data suggest that the rate of denials for certain types of conditions, partial denials for certain services provided, and denials for intermittent care have increased in recent years. This may explain the decreasing utilization trends. Further analyses of these data are necessary to better understand these trends.

The Commission anticipates that OBRA 1987 changes will result in more flexible administration of the home health program. The consolidation of administration in ten regional fiscal intermediaries that process home health claims may increase the consistency of coverage determinations. The

Table 6–6. Trends in Home Health Care Utilization, 1983–1986

Fiscal Year	Total Visits (in millions)	Percent Change	Patients Served (in millions)	Percent Change	Visits Per Patient	Percent Change
1983	37.6	---	1.35	---	27	---
1984	41.4	10.1%	1.52	12.6%	27	0.0%
1985	40.3	-2.7	1.59	4.6	25	-7.4
1986	38.6	-4.2	1.60	0.6	24	-4.0

SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration.

Commission hopes that these changes will lead to better administration of the home health program, and plans further monitoring and analysis of this benefit.

Hospice Care

The National Hospice Association defines hospice care as a coordinated program of services provided in home and inpatient settings that encompasses physical, psychological, social, and spiritual care for dying persons and their families during the last phases of incurable disease. Hospice care, therefore, is a concept rather than a place.

The Medicare statute was amended in 1983 to provide coverage for hospice care (see Chapter 5). Since 1983, the number of Medicare-covered hospice patients has increased by 70 percent. Estimates indicate that more than 70 percent of hospice care recipients are 65 and older. In 1986, 45 percent of all hospices were operated independently. Of the remainder, 26 percent were hospital-based and 22 percent were home-health-agency-based. Medicare hospice care expenditures totaled about $4 million in 1983, increasing to $278 million in 1987. The number of Medicare admissions increased by a factor of 40 from 1983 to 1987, rising from 2,098 to over 90,000.[11] The number of Medicare-approved hospice programs increased from 108 in 1984 to 390 in 1987.[12] These figures may understate the number of hospices because many programs have not sought Medicare certification.

Hospice care was almost nonexistent in the United States before the 1980s. Today, it is an important part of the health care delivery system. The emergence of hospice care illustrates the extent to which changes in society's values can affect the delivery of health care. It is becoming an increasingly visible and accepted form of care for terminal patients. The impact of third-party reimbursement in promoting growth, however, cannot be overlooked.

OTHER HEALTH SYSTEM CHANGES

The effect of PPS on Medicare beneficiaries and on the health care delivery and financing system has been discussed throughout this report. Serious concerns have been raised, many of which are presented here. Two other emerging health policy issues particularly important to the Commission are the long-term care needs of a rapidly aging U.S. population and the growing number of people who are uninsured.

Long-Term Care

Long-term care represents one of the most difficult and critical public policy problems of the next decade. The growth in the number of older Americans is impressive, and with increasing age comes increasing disability and chronic illness. As the century began, only one in 25 of the nation's citizens was 65 or older. Today that ratio is one in eight.[13] The U.S. Bureau of the Census reported 12 percent of the total population (29.2 million people) age 65 and over in 1985. Of the total population, 7 percent were 65 to 74 (17.3 million), 4 percent were 75 to 84 (9.1 million), and 1 percent was 85 and older (2.8 million).

Until 1980 the age group 85 and older represented less than 1 percent of the total population. Projections through 2050 show that the 85 and older group will increase from 1.8 percent in 1990 to 2.3 percent in 2000, 3.8 percent in 2030, and 5.2 percent in 2050. The 65 and older population as a whole is projected to increase from 12.7 percent in 1990 to almost 22 percent in 2050.[14]

Most of the elderly population are women. In the age 65 to 69 group, there are 83 men to every 100 women. For persons 85 years and older, there are 40 men to every 100 women.[15] White females have the highest life expectancy at birth, followed by nonwhite females, white males, and nonwhite males.[16] Almost half the nation's elderly live in eight states: California, Florida, Illinois, New York, Michigan, Ohio, Pennsylvania, and Texas. The elderly are no more likely to be poor than the nonelderly. However, a greater proportion of the elderly live near the poverty level. The oldest elderly are most likely to have incomes at or below poverty level, with median annual incomes of $6,400.[17]

According to the 1985 National Nursing Home Survey, 88 percent of nursing home residents are over 65 years of age. In the survey, nursing homes include all facilities that provide elderly residents with nursing, personal, maintenance, and supportive care. The survey also estimates there were 19,100 nursing homes with more than 1.6 million beds in 1985. More than 1.3 million elderly people filled those beds. Since 1973 the number of nursing homes has increased by 22 percent, while the number of beds has increased by 38 percent. Even though there has been an increase in the total number of beds since the 1970s, there has been a decrease of 2.8 beds per 1,000 people aged 65 and older.[18] Nursing home bed growth and the ratio of beds per 1,000 people vary substantially by state. This may reflect variations in state Medicaid reimbursement policies, the availability of alternative services, and the state's ability to limit the supply of beds.[19]

As discussed earlier, Medicare covers only a small percent of the total cost of nursing home care. Nearly one-half of nursing home care is reimbursed by Medicaid. The remainder is typically paid out-of-pocket. As the population ages, more patients will require long-term nursing care services. Consequently, long-term care insurance programs are being introduced; some 70 companies now provide such plans.[20] In order to qualify for benefits, most policies require prior hospitalization. In addition, the care received at the nursing home must be for the same condition treated in the hospital. However, only about 40 percent of all nursing home patients are admitted to a nursing home directly after a hospital stay.[21] Other restrictions include limits on benefits for existing health problems and Alzheimer's disease, and lack of custodial care benefits. The absence of a clear definition of benefits is a problem associated with most of these plans. These long-term care insurance programs are relatively new and deserve careful review.

Uncompensated Care

Payment for the cost of furnishing health care services to patients who are uninsured is a major issue facing hospitals and the American public. Although the Medicare program is not responsible for subsidizing this care, the Commission believes Medicare may be indirectly affecting this problem. Concern over financing uncompensated care has intensified because of PPS and other payment systems that limit reimbursement to pay only for the care of specific beneficiaries. On the other hand, by allowing hospitals to earn a surplus on their Medicare business, PPS may be providing them with opportunities to finance uncompensated care. In response to this problem, several states have taken initiatives to give financial assistance to people without health insurance. In addition, various proposals to address this issue have been introduced in the Congress.

It is generally believed that medical care of uninsured Americans has been subsidized in four ways. First, hospitals shift a portion of these costs through increased charges to third-party payers. Second, hospitals use available cash flow (including non-patient care revenue) to finance a portion of this care. Third, local, county, and state government entities provide appropriations to subsidize hospitals for uncompensated care costs. Finally, hospitals use charitable contributions to support this care.

Studies indicate, however, that shifting costs to third-party payers by increasing charges has not been an effective strategy. One study found that the ability of hospitals to increase charges is not unconstrained. The study also found that hospitals that increase charges do so for reasons other than financial pressures due to charity care, bad debt, or government payments relative to costs. In other words, raising charges to third-party payers may not be a safety valve for hospitals with declining margins or other financial pressures.[22]

Care of the uninsured is an increasingly significant issue because of the growing size and increasing health care needs of this population. At the same time, hospitals that provide most of this care are becoming less able to care for the uninsured. Further, it appears that the willingness of other hospitals to finance such care is being sorely tested. Clearly there is a need for public debate on uncompensated care. Legislation dealing with the uninsured, along with other public and private approaches, deserves careful review and discussion. For all these reasons, the Commission has summarized information about the definition, size, and characteristics of this problem, as well as responses to it.

Characteristics of the Uninsured—The uninsured are those who lack either private health insurance or coverage under public programs like Medicare and Medicaid. Typically, the uninsured are under 64 years of age. Less than 4 percent of those over 65 are uninsured. The probability of being uninsured is greater for blacks and Hispanics than for whites, and the likelihood of being uninsured is greater for Americans living in rural areas than for those in urban areas.

Most researchers agree that the majority of the uninsured have some connection to the workplace. In 1983, according to an AHA report, 28 percent of the uninsured were working adults, and 23 percent were their dependents. The majority of these people are employed by small firms. In fact, almost half work in firms with fewer than 20 employees or are self-employed. An unknown number are employed part-time or work intermittently. Uninsured children with an insured parent or guardian represent 12 percent of the uninsured population. The remaining are uneployed adults and their dependents.[23]

As family income rises, the probability of being uninsured declines. About 35 percent of the uninsured in 1983 had family incomes exceeding 200 percent of the Federal poverty line, 35 percent had incomes below the Federal poverty line, and 30 percent had incomes considered above but near poverty. The distribution of uninsured by income levels was similar in 1984 and 1985. Approximately 41 percent of persons with incomes below 125 percent of the Federal poverty line were uninsured in 1985.

The uninsured are not equally distributed across the country. In certain regions, a higher percent of the population lacks health insurance, as seen in Figure 6-2.[24] Regional variation may be attributable to the Medicaid eligibility standards in each area. Nationally, the ratio of Medicaid beneficiaries to the number of persons below the Federal poverty line varies from a low of 0.31 to a high of 1.57.[25]

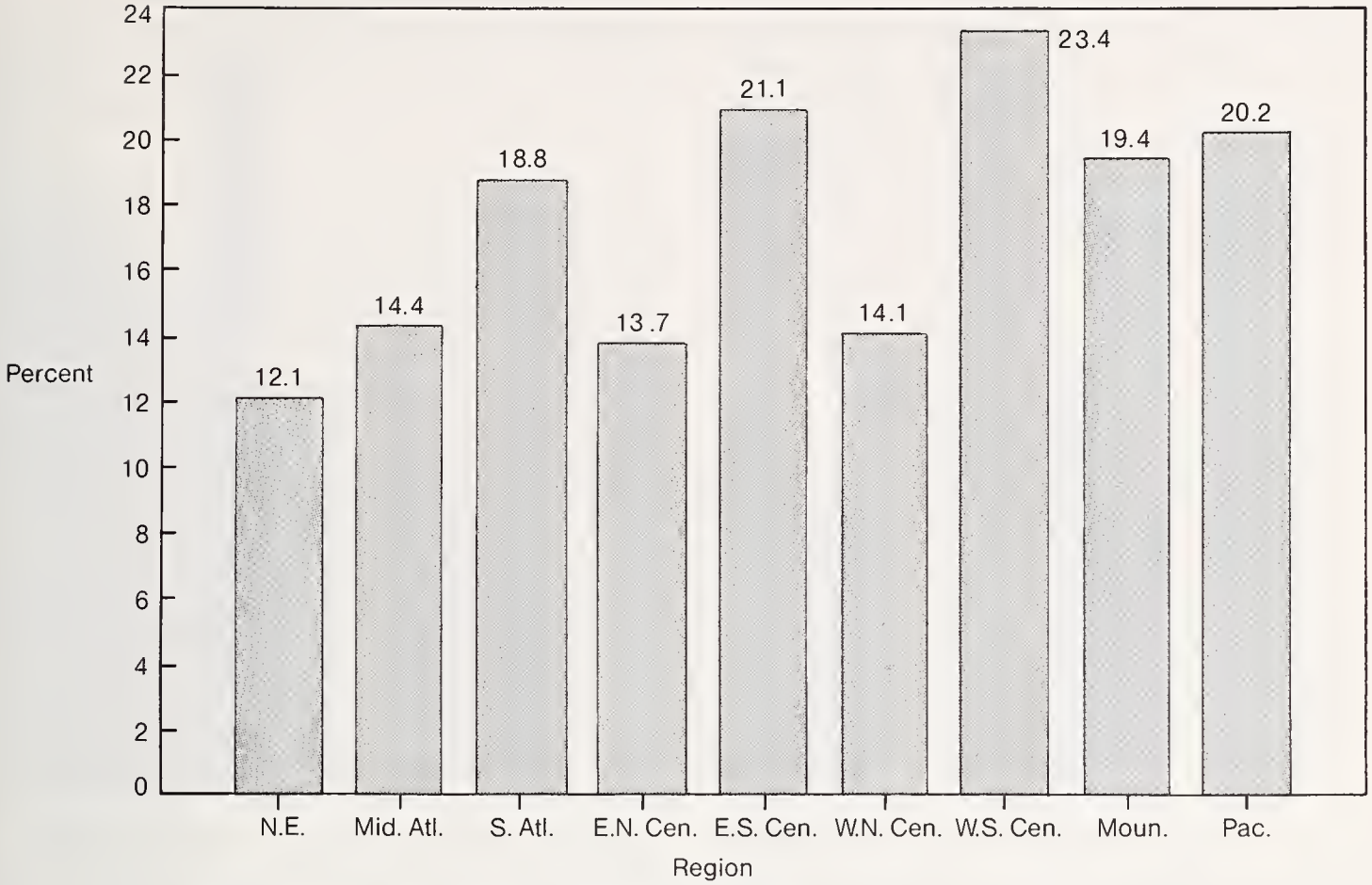
Growth in the Number of Uninsured—Several surveys indicate an increase in the number of uninsured. According to the National Access Survey, 9.0 percent of the population lacked insurance in 1986, up from 8.7 percent in 1982. The Current Population Survey found 15.7 percent of Americans without health insurance in 1986, an increase from 13.4 percent in 1982.[26] Other studies indicated even higher rates of uninsured Americans. These figures differ partially because of the methodologies employed.[27]

Part of the growth in the number of uninsured may have resulted from recent cutbacks in Medicaid and other public programs. For instance, in 1976 Medicaid covered 65 percent of the poor. However, by 1984 Medicaid covered only between 31 and 36 percent of the poor.[28] Furthermore, in the past few years several states have limited benefits, restricted eligibility, and reduced provider reimbursement. As a result, some Medicaid beneficiaries are uninsured or underinsured for a part of the year. This is also true for persons who work intermittently. If individuals with part-year coverage were included, the number of uninsured during 1983 would increase by approximately 17 percent.[29]

The Amount of Uncompensated Care—Uncompensated care typically means charity care plus bad debt. Charity care is care for which no payment is expected. Bad debt is care for which payment is expected but not received. (Since Medicare reimburses hospitals for beneficiary bad debt, this term applies to non-Medicare patients.) For the hospital, there is little difference between charity care and bad debt. Both result in care that is uncompensated, thereby reducing net hospital revenue.

In general, systematic information currently collected on uncompensated care relates only to hospital services. This information is collected on

Figure 6-2. Percent of Region's Population Without Health Insurance, 1985



SOURCE: Employee Benefit Research Institute tabulations, March 1986 Current Population Survey

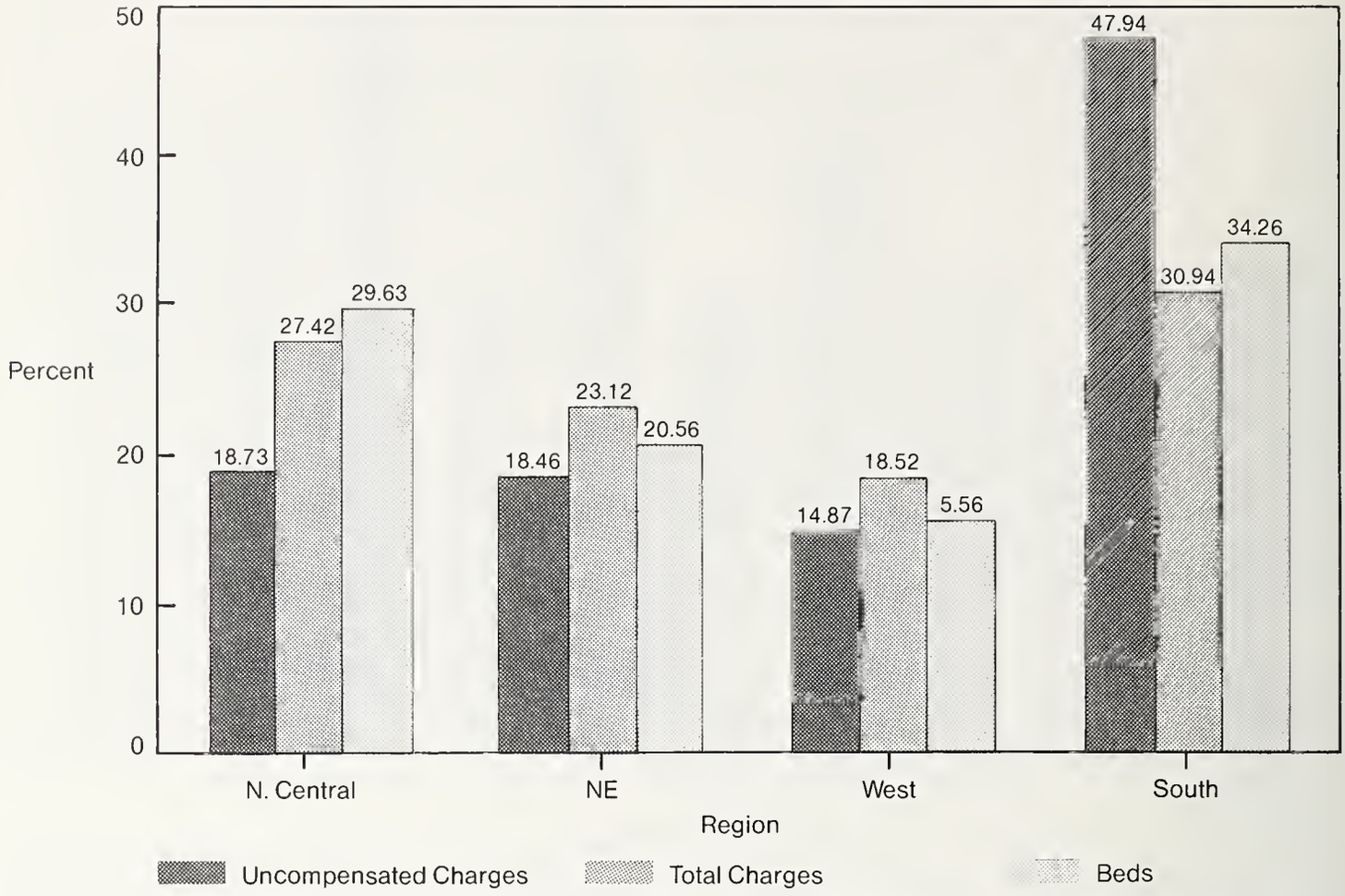
either a cost or charge basis. The charge data may tend to overstate the actual level of uncompensated care provided. Hospital uncompensated care charges were estimated by one study to be between $4.2 billion and $5.2 billion in 1978. In 1982, this figure ranged from $6.2 billion to $7.5 billion.[30] According to another study, uncompensated care costs were $2.8 billion in 1980, increasing to $7 billion in 1986.[31]

Figure 6-3 provides information on the geographic distribution of uncompensated care charges, total charges, and beds by region in 1982. For example, uncompensated care charges of 48 percent in the south are higher than in any other region.

The nation's public hospitals carry the heaviest charity care burden. According to a 1983 AHA survey, charity care and bad debt represented 11.5 percent of patient revenue for state and local government hosptials, 16.3 percent of patient revenue for public hospitals with teaching programs, and 8.8 percent for those without teaching programs. For voluntary teaching hospitals, it was 4.6 percent and for nonteaching hospitals, 4.1 percent. Finally, charity care and bad debt represented 3.1 percent of proprietary hospitals' patient revenue.[32]

In 1982, urban public hospitals provided 40 percent of the uncompensated care nationally, while representing only 5 percent of beds. Public hospitals provided, on average, $32,100 in uncompensated care charges per bed, compared with $7,100 for private hospitals. The National Association of Public Hospitals attributed 31 percent of their members' patient days and 51 percent of outpatient visits, on average, to uninsured patients in 1984.

Figure 6-3. Percent Distribution of Uncompensated Charges, 1982



SOURCE: Margaret B. Sulvetta, "Dimensions of the Uncompensated Care Problem," *Uncompensated Hospital Care Issues and Options*, Brandeis University Health Policy Consortium, March 1985.

Medicaid patients represented another 25 percent of both patient days and outpatient visits for these hospitals.

During the first three years of PPS, urban government hospitals had lower PPS margins than urban hospitals overall. The third-year PPS margin for this group was 6.1 percent compared with 8.9 percent for urban hospitals overall. As margins decline, the ability of hospitals to subsidize uncompensated care will continue to be threatened. Because this is particularly true for public hospitals, access to health care services for uninsured Americans could be further restricted.

State and local government tax appropriations support hospital care for the uninsured. These appropriations rose by 41 percent between 1980 and 1984. Public hospitals received $2.3 billion from state and local governments in 1984. However, as a percentage of total operating expense, state and local government appropriations decreased. While the appropriations rose 41 percent, the amount of uncompensated care provided by public hospitals increased nearly 90 percent.[33]

Taxpayers also subsidize a portion of these costs through loss of revenue resulting from the tax-exempt status of voluntary hospitals. In addition, philanthropic gifts finance an unknown amount of uncompensated care costs.

As pressure increases among payers to end or reduce cost shifting, patients who receive uncompensated care will become increasingly isolated. It

is the concern of public hospitals that when no insurer assumes responsibility for serving the uninsured poor, those patients will increasingly rely on the nation's public hospital systems—at least up to the limits of local taxpayers' willingness to support this burden.[34]

Responses—Hospitals, states, and Congress continue to tackle the problems of the uninsured. Hospitals are adopting strategies that could reduce the amount of uncompensated services they provide. According to AHA data, about 15 percent of hospitals adopted explicit limits on the amount of charity care they provided in 1981 and 1982. Almost 85 percent of hospitals surveyed reported increased billing and collection efforts. Approximately 10 percent reduced their hours of operations or staffing in outpatient departments.[35] Other general cost-containment strategies that hospitals are adopting may be seen as a way to create surplus to cover uncompensated care. These include postponing pay increases, and deferring maintenance repairs and capital acquisitions. More recent data on hospital strategies are not yet available.

Several states have enacted laws designed to address the problem of medical indigence. In addition, legislative proposals pending in Congress address this issue. These approaches focus on the three relevant groups: the unemployed uninsured, the medically uninsurable, and the employed uninsured.

One initiative, indigent care pools, redistributes funds to hospitals bearing a high proportion of the uncompensated care burden. In addition, funds are used to expand Medicaid eligibility. These pools are funded from a variety of sources, including taxes on health insurance premiums and hospital revenue. Florida, New York, South Carolina, and New Jersey are among the states that have established indigent care pools. A second initiative, risk pools for the medically uninsurable, covers people who cannot obtain health insurance because of preexisting medical conditions. A third initiative, mandated employer health insurance, requires all employers to offer health insurance to their employees.

States are considering whether to tax voluntary health care providers who fail to meet certain charity care requirements. Several states have limited professional liability for physicians and volunteers rendering health care services to indigent patients. Further, Congress and several states have enacted legislation penalizing hospitals for transferring indigent patients in emergency situations. Other proposals include requiring states to cover all people below a uniform percent of the Federal poverty line, extending Medicaid benefits to those recently employed, and using a portion of the budget savings from Medicare to assist those hospitals with a higher charity care burden.

Most of the current initiatives addressing problems of uncompensated care are at the state and local level. Consequently, access to health care for the uninsured varies by region. As this problem intensifies, certain hospitals will become increasingly vulnerable. In addition, access to health care services by the uninsured will be jeopardized. It is becoming apparent that this problem cannot be addressed in a piecemeal fashion. While there may be little willingness to create or expand entitlement programs, there is clearly a need for Federal direction on this issue.

SUMMARY AND CONCLUSIONS

Major changes in health care delivery and financing have occurred throughout the 1980s. PPS is only one example of these changes. More information is necessary to evaluate its effect, along with other alternative financing and delivery modes, on the American health care system. Particularly, the impact on national health care expenditures, the Medicare program, and Medicare beneficiary expenditures needs to be examined.

The rapid growth of alternative financing mechanisms, particularly HMOs, in the early 1980s appears to have slowed down and perhaps decreased. The move to national firms in the HMO industry indicates a potential concentration of providers. Although the Commission believes Medicare should encourage the development of alternative financing mechanisms, careful evaluation and assessment of HMOs and other capitation plans are warranted. Several issues regarding cost, quality, and access need to be addressed. The Commission is particularly interested in monitoring the development of MIG demonstration projects to determine their effect on Medicare beneficiaries.

Recent data indicate increased use of sites of care offering health care services historically provided to hospital inpatients. For instance, surgeries once performed on hospital inpatients now occur in hospital OPDs and free-standing ASCs. While the movement away from the inpatient setting is growing and may be warranted, there is little information on the cost of these alternative sites or the quality of care provided. Other alternative sites of care, such as diagnostic imaging and cancer centers, may exemplify situations where the provision of specialized services appears to lower unit costs. However, they may also drive up volume inappropriately, thereby increasing overall costs.

The number of hospitals and distinct-part units excluded from PPS has also grown substantially since the implementation of PPS. Part of this trend may be attributed to hospitals seeking excluded status to increase total payments. It may also represent an increase in new facilities and units that compete with existing facilities. The greatest category of growth has been in rehabilitation hospitals and distinct-part units.

Post-acute care services are critical to Medicare patients. As the beneficiary population ages and length of stay decreases, the need for these services increases. There are indications that eligibility for two of the most important benefits—home health and SNF care—is being too narrowly interpreted. In addition, it appears that the benefits are not uniformly administered across the country. As beneficiaries requiring these services are discharged from hospitals, the Commission is concerned about possible gaps in care. Changes enacted in OBRA 1987 may provide more uniformity and clarity in these services. In the Commission's view, careful monitoring of this area is necessary.

Long-term care and uncompensated care costs are significant health policy issues that must also be addressed. With an aging population comes an increased need for additional health care services. The Medicare program was not designed to cover all the long-term care needs of beneficiaries. But the Commission believes that the Federal government's role in long-term care will be a critical issue in the next decade.

Further, the Commission is concerned about the impact of the uninsured on the health care system. PPS may have enabled hospitals to finance this care with surplus revenue. As margins decline, however, ProPAC is concerned about what effect the cost of this care will have on the health care industry and the uninsured. As other payers attempt to constrain costs, the health care industry may no longer be able to support this care through traditional means. As a result, access to necessary health care services for the uninsured may deteriorate. The Commission believes that Federal direction on this issue is needed.

Notes to Chapter 6

1. *Data on Alternative Financing and Delivery Systems*, prepared by InterStudy under ProPAC contract No. T-47539288, February 1, 1988. Most of the data in this section are taken from this report.

2. Medicare risk-contract HMOs are reimbursed monthly on a per capita basis using a prescribed formula. The plan must provide beneficiaries with all Medicare-covered services and may provide additional benefits. If the plan's predicted costs are less than Medicare reimbursement, the plan must provide additional benefits or lower premiums. The plan must bear the loss for all costs in excess of the monthly payment.

3. Federally certified CMPs are prepayment organizations that do not meet the strict requirements applied to Federally qualified HMOs. but are still capable of providing services to Medicare beneficiaries on a prepayment basis.

4. A cost contract entitles an HMO to receive enrollee per capita prepayments that are later adjusted to reflect actual costs. An HCPP contract entitles an HMO to contract with HCFA to offer Medicare Part B benefits only on a cost-based method. Supplemental benefit packages are comparable to Medigap insurance and provide coverage that is not included in the Medicare benefit package.

5. Most of the data in this section are from *Data on Alternative Financing and Delivery Systems*.

6. Diagnostic imaging centers are completely devoted to diagnostic imaging services, including MRI, CAT scans, ultrasound, X-rays, nuclear medicine, sonography, thermography, diaphanography, digital fluoroscopy, digital subtraction angiography, and positron emission tomography.

7. U.S. Department of Health and Human Services, Office of Financial and Actuarial Analysis, Health Care Financing Administration, 1988.

8. Most of the data in this section are from *Data on Alternative Financing and Delivery Systems*.

9. U.S. Congress, House of Representatives, Committee on Ways and Means, *Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means* (Washington, DC: U.S. Government Printing Office, March 24, 1988) 131.

10. Preliminary findings from *Subacute Care in Hospitals,* prepared by Lewin/ICF Inc. under ProPAC contract No. T-47541399, March 1988.

11. U.S Department of Health and Human Services, Health Care Financing Administration, Hospice Status Report, 1988.

12. *Data on Alternative Financing and Delivery Systems,* 123.

13. *Aging America: Trends and Projections 1987-88 Edition*, prepared by the U.S. Senate Special Committee on Aging in conjunction with the American Association of Retired Persons, the Federal Council on Aging, and the U.S. Administration on Aging (Washington, DC: U.S. Department of Health and Human Services, 1988).

14. Gregory Spencer, "Projections of the United States Population, by Age, Sex, and Race: 1983 to 2080" in *Current Population Reports Series*, No. 952, May 1984, 25.

15. *Aging America*, 21.

16. Ibid., 26-7.

17. Ibid., 45.

18. *Data on Alternative Financing and Delivery Systems,* 38-40.

19. Ibid.

20. "Who Can Afford a Nursing Home?" *Consumer Reports*, 53(5):300, May 1988.

21. Ibid., 301.

22. Jack Hadley and Judith Feder, "Hospital Cost Shifting and Care for the Uninsured," *Health Affairs* 4(3):67-80, Fall 1985.

23. American Hospital Association, *Cost and Compassion: Recommendations for Avoiding a Crisis in Care for the Medically Indigent*, (Chicago, IL: American Hospital Association, 1986)105.

24. Deborah J. Chollet, Ph.D., citing tabulations of the March 1986 Current Population Survey by the Employee Benefit Institute, in testimony at a hearing on uncompensated hospital care before the Subcommittee on Health, Committee on Ways and Means, U.S. House of Representatives, Committee hearing print 100-12, Washington, DC. March 12, 1987.

25. Karen Rodman and S. Wolfe., M.D., *Poor Health Care for Poor Americans: A Ranking of State Medicaid Programs* (Washington, DC: Public Citizen Health Research Group, 1987) 83.

26. The Robert Wood Johnson Foundation, *Special Report: Access to Health Care In the United States: Results of a 1986 Survey* Number Two/1987 (Princeton, NJ: The Robert Wood Johnson Foundation, 1987).

27. *Special Report: Access to Health Care.*

28. *Cost and Compassion*, 105, and Catholic Hospital Association of the United States, *No Room in the Marketplace: The Health Care of the Poor* (St. Louis, MO: Catholic Hospital Association of the United States, April 24, 1986)2.

29. *Cost and Compassion*, 105.

30. *Health Care Competition Week* 5(6):1, March 8, 1988.

31. American Hospital Association, Office of Public Policy Analysis, 1985, unpublished data on unsponsored care, quoted in *Cost and Compassion*, 135-36.

32. Linda Demokovich, "Hospitals That Provide for the Poor Are Reeling from Uncompensated Costs," *National Journal* 16(47):2248, November 24, 1984.

33. *Cost and Compassion*, 9.

34. Larry Gage, president of the National Association of Public Hospitals, in testimony before the Subcommittee on Health, Committee on Ways and Means, U.S. House of Representatives Washington, DC, February 15, 1983.

35. Suzanne Mulstein, "The Uninsured and the Financing of Uncompensated Care: Scope, Costs and Policy Options," *Inquiry* 21:214-29, Fall 1984.

Appendix

Appendix

BIOGRAPHICAL SKETCHES OF COMMISSIONERS

Stuart H. Altman, Chairman

Stuart H. Altman, dean of the Florence Heller Graduate School for Social Policy, Brandeis University, and Sol C. Chaikin Professor of National Health Policy, is an economist whose research interests are primarily in the area of Federal health policy. He has been at Brandeis since 1977. Between 1971 and 1976, Dean Altman was deputy assistant secretary for planning and evaluation/health at the Department of Health, Education and Welfare (now the Department of Health and Human Services). In that position, he was one of the primary contributors to the development and advancement of the National Health Insurance proposal. From 1973 to 1974, he also served as the deputy director for health of the President's Cost of Living Council, where he was responsible for developing the council's program on health care cost containment. Formerly, Dean Altman taught at Brown University and at the University of California (Berkeley). He is a member of the Institute of Medicine of the National Academy of Sciences and former member of its governing council; a member of the board of Beth Israel Hospital (Boston); chairman of the board of the Health Policy Center at Brandeis; and president of the National Foundation for Health Services Research. He is a past president of the National Association for Health Services Research and former board member of The Robert Wood Johnson Clinical Scholars Program. Dean Altman also served on the President's Commission for a National Agenda for the Eighties. A member of several editorial boards, he has published extensively on various aspects of health care and public policy. His publications include: the Arthur Weissman Memorial Lecture, "Will the Medicare Prospective Payment System Succeed? Technical Adjustments Can Make the Difference"; *Federal Health Policy: Problems and Prospects*, with Harvey M. Sapolsky; *Ambulatory Care: Problems of Cost and Access*, with Joanna Lion and Judith LaVor Williams; "Financing Hospital Care: An Uncertain Future," *Journal of Health Administration and Education* 3(1) Winter 1985; "The Impact of Cost Shifting on the Health Care System," in *Health Care Commentary*, Health Insurance Association of America; and "The Growing Physician Surplus: Will It Bankrupt or Benefit the U.S. Health System?" in *In Search of a Public Policy*, edited by Eli Ginzberg and Miriam Ostow. Dean Altman received both an M.S. and a Ph.D. in economics from the University of California (Los Angeles).

Harold A. Cohen

Harold A. Cohen is a health services consultant and a lecturer in the Department of Health Care Organization of The Johns Hopkins University. He has been with the university since 1972. From 1972 to 1987, he was the executive director of the Health Services Cost Review Commission of the state of Maryland. Before that, he was on the economics faculty of the University of Georgia. Dr. Cohen has been a leader in the development and administration of state-level cost review and rate-setting efforts. He is a member of the American Economic Association, the Southern Economic Association, the Western Economic Association, the American Public Health Association, and the Health Economic Research Organization. Dr. Cohen is the author of numerous professional publications, including "The Financing of Coronary Artery Bypass Surgery," *Circulation*, November 1982; "Case Mix and Regulation," in *Topics in Health Care Financing: Diagnostic Related Groups*, Summer 1982; "Evaluating the Cost of Technology," in *Health Care in the 1980s,* 1979; "Controlling Medicaid Expenditures by General Price Controls," in *The Medicaid Crisis: What States Can Do in the 1980s,* 1982; and "A Model for Resolving Planning Rate Setting Conflict," with Carl J. Schramm, Ph.D., J.D., in *A New Approach to the Economics of Health Care,* 1982. He holds an M.A. and a Ph.D. in economics from Cornell University, and received a bachelor's degree from Harpur College (now the State University of New York at Binghamton).

Curtis C. Erickson

Curtis C. Erickson is president and chief executive officer of Great Plains Health Alliance, Inc., a post he has held since 1959. He was that organization's assistant director from 1955 to 1959. Having served the American Hospital Association (AHA) in many capacities, he became chairman of Regional Advisory Board 6 and a trustee in 1987. He has also chaired AHA's advisory panel to the Center for Small or Rural Hospitals and has been a member of the Council on Management, the Council on Federal Relations, and a representative to the House of Delegates. President of the Lutheran Hospital Association of America from 1974 to 1975, Mr. Erickson was also on the board of trustees from 1972 to 1982. He was president of the Kansas Hospital Association from 1965 to 1966, a member of the board of governors of the Healthcare Stabilization Fund for the Kansas Department of Insurance, and past district governor of Rotary International. From 1983 to 1986, Mr. Erickson served on The Robert Wood Johnson Foundation's National Advisory Committee for the Rural Hospital Program of Extended Care Services. Mr. Erickson is a member of the American College of Healthcare Executives. From 1951 to 1955, he served in the U.S. Air Force. He received a B.S. in business administration from Fort Hays Kansas State University in 1951.

William D. Fullerton

William D. Fullerton is an adjunct associate professor in the School of Medicine, University of North Carolina at Chapel Hill. From 1978 to 1984, he was principal and president of Health Policy Alternatives, Inc., where he is now a part-time consultant. The first deputy administrator of the Health Care Financing Administration (1977–78), Mr. Fullerton was also a special consultant to the Secretary of the Department of Health, Education and Welfare. He served as chief of the professional health staff, Committee on Ways and Means, U.S. House of Representatives, from 1970 to 1976. Mr. Fullerton was the first executive secretary of the Health Insurance Benefits Advisory Council in 1965–66. Before that, he held various positions in the Social Security Administration. He is a member of the Institute of Medicine of the National Academy of Sciences. Mr. Fullerton received a B.A. from the University of Rochester.

B. Kristine Johnson

B. Kristine Johnson is vice president, corporate affairs and a member of the senior management council of Medtronic, Inc. Joining the company in 1982 as director of public affairs, she subsequently served as vice president, public affairs and vice president, U.S. national accounts/customer marketing. She assumed her post in 1987. Prior to that, Ms. Johnson was an executive of Cargill, Inc. She is a former chair of the health care financing committee and government affairs section of the Health Industry Manufacturers Association (HIMA). A member of the University of Minnesota Hospital board, Ms. Johnson chairs its planning and development committee. She received a B.A. from Saint Olaf College and served on the college's board of regents from 1973 to 1986.

Sheldon S. King

Sheldon S. King is president of Stanford University Hospital and a clinical associate professor in the Department of Community, Family, and Preventive Medicine at Stanford's School of Medicine. From 1981 to 1985, he served simultaneously as the hospital's executive vice president and director as well as the medical school's associate vice president for medical affairs. Mr. King was also director of hospitals and clinics, University Hospital, University of California Medical Center, from 1972 to 1981. He was executive director of the Albert Einstein College of Medicine from 1968 to 1972, and held various positions at Mount Sinai Hospital from 1957 to 1968. Mr. King was chairman of the administrative board of the Council of Teaching Hospitals of the Association of American Medical Colleges. Besides serving in the House of Delegates of the American Hospital Association, he is chairman of the advisory board of the American Board of Internal Medicine. Mr. King is a Fellow of the American College of Health Care Executives, the American Public Health Association, and the Royal Society of Health. His publications include the "Impact of Competition and Cost Containment in the University Hospital," *American Journal of Cardiology*, August 1985. Mr. King received an A.B. from New York University and an M.S. from Yale University.

Barbara J. McNeil

Barbara J. McNeil is professor of radiology at Harvard Medical School, Brigham and Women's Hospital, and professor of clinical epidemiology, Harvard Medical School. She is also director of the Center for Cost-Effective Care, Brigham and Women's Hospital, and deputy director for Residency Training, Joint Program in Nuclear Medicine, Harvard Affiliated Hospitals. Dr. McNeil is a member of the Harvard-MIT Division of Health Sciences and Technology. Her professional and advisory activities are extensive. She serves on the board of trustees of the Society for Medical Decision Making. Dr. McNeil is a member of the joint committee of the American College of Radiology, the Association of University Radiologists, and the Society of Chairmen of Academic Radiology. She is also a member of the Fleischner Society, the Institute of Medicine of the National Academy of Sciences, and the National Council on Radiation Protection and Measurements. She serves on the American College of Radiology's committees on nuclear radiology and on quality assurance and efficacy. Formerly, Dr. McNeil was on the board of the Association for Health Services Research, the policy council of the Association for Public Policy Analysis and Management, and a member of the National Council on Health Care Technology. She has written five books and more than 150 professional articles and reports. Dr. McNeil has an A.B. in chemistry from Emmanuel College, an M.D. from Harvard Medical School, and a Ph.D. in biological chemistry from Harvard University.

Kathryn M. Mershon

Kathryn M. Mershon is vice president, nursing, at Humana, Inc., a position she has held since 1980. She holds an adjunct assistant professorship of nursing at Spalding University. From 1971 to 1980, Ms. Mershon was associate executive director —nursing at St. Joseph Infirmary (now Humana Hospital Audubon) in Louisville, Kentucky. Before that, she was a clinical nursing specialist at St. Joseph Infirmary, clinical instructor at St. Francis Xavier Hospital School of Nursing, and a staff nurse. She has a distinguished list of professional and community activities, including board of governors of the Federation of American Health Systems, board member of the National League for Nursing, and editorial review board of *Nursing & Health Care*. She is a former trustee of Spalding University and member of the advisory board of the University of Louisville's School of Nursing. Ms. Mershon also served on the Louisville Board of Health and on the board of governors of Louisville General Hospital. She has made numerous public presentations on a variety of nursing-related issues. Her recent publications include: "Some Myths Pertaining to For-Profit Health Care," *Nursing Economics*, September/October 1986, and "Nurses and the Health Cost Crisis: A Strategic Approach to the Challenge," *Orthopaedic Nursing*, January/February 1985. Ms. Mershon received a B.S. in nursing from Spalding University and an M.S. in nursing from St. Louis University.

James J. Mongan

James J. Mongan is the executive director of the Truman Medical Center, Kansas City, Missouri, and dean of the University of Missouri-Kansas City School of Medicine. He holds professorships in the School of Medicine and the School of Business and Public Administration at the University of Missouri-Kansas City. From 1979 to 1981, he was the associate director for health and human resources, Domestic Policy Staff, the White House. Dr. Mongan served as deputy assistant secretary for health policy at the Department of Health, Education and Welfare from 1977 to 1979 and was the Secretary's special assistant for National Health Insurance. For seven years before that, he was a professional staff member of the Committee on Finance, U.S. Senate. Dr. Mongan is a member of the board of trustees of the American Hospital Association and a member of the House of Delegates. He is on the board of the Council of Teaching Hospitals of the American Association of Medical Colleges and a member of the advisory committee for The Robert Wood Johnson Foundation's Program for Prepaid Managed Health Care. Dr. Mongan received A.B. and M.D. degrees from Stanford University.

Eric Muñoz

Eric Muñoz is head of the research division of the department of surgery at the Long Island Jewish-Hillside Medical Center and assistant professor of surgery at the State University of New York at Stony Brook. He has been an instructor at the Yale University School of Medicine and New York Medical College. Dr. Muñoz is nationally

recognized for his research on the DRG payment mechanism, which has focused on the higher costs of emergency hospital admissions. He is also a specialist on problems of health care delivery to the poor. Dr. Muñoz was president of the American Association of Puerto Rican Scientists and served on the board of that organization. His other numerous professional affiliations include Fellow of the American College of Surgeons, the Association for Academic Surgery, and the International Health Economics and Management Institute. He is certified by the American Board of Surgery. Dr. Muñoz has published more than 30 articles on health care costs. He received a B.A. in psychology from the University of Virginia, an M.D. from the Albert Einstein College of Medicine, and an M.B.A. in finance and economics from Columbia University. Dr. Muñoz trained in general and peripheral vascular surgery at Yale University.

John C. Nelson

John C. Nelson is a practicing obstetrician and gynecologist in Salt Lake City, Utah. He has been involved in cost-containment efforts at local and state levels and is active in the American Cancer Society as well as numerous other medical and civic efforts. A member of the American Medical Association, Dr. Nelson is the delegate from Utah and serves on the work group on evaluation, assessment, and control—Health Policy Agenda for the American People. He is a delegate to the Utah State Medical Association House of Delegates, and serves on the editorial board of the *Utah Medical Bulletin* as well as on the board of the Utah Health Cost Management Foundation. Dr. Nelson is also a member of the board of the Utah Professional Review Organization and the governor's Select Advisory Committee on Child Abuse and Neglect. He is former director of cost containment for Blue Cross/Blue Shield of Utah. Dr. Nelson took his internship at the Providence Hospital in Portland, Oregon, and a residency with the Department of Obstetrics and Gynecology at the University of Utah. He is board-certified by the American Board of Obstetrics and Gynecology, and a Fellow of the American College of Obstetrics and Gynecology. He received a bachelor's degree in zoology from Utah State University and an M.D. from the Utah College of Medicine.

Leonard D. Schaeffer

Leonard D. Schaeffer is president and chief executive officer of Blue Cross of California. He came to Blue Cross from his position as president of Group Health, Inc. Mr. Schaeffer was formerly executive vice president and chief operating officer of the Student Loan Marketing Association. He served as administrator of the Health Care Financing Administration, Department of Health and Human Services, and as assistant secretary for management and budget in the Department of Health, Education and Welfare. Before that, Mr. Schaeffer was vice president of Citibank, N.A. He has held various positions with the state of Illinois, including director of the Bureau of Budget, head of the State Planning Office, chairman of the Illinois Capital Development Board, and deputy director for management, Illinois Department of Mental Health and Developmental Disabilities. He was previously vice president of a private investment banking firm and a consultant for Arthur Anderson & Company. A Kellogg Fellow, Mr. Schaeffer was also on the executive committee of both the National Cooperative Business Association and the Minnesota Coalition on Health Care Costs. He was graduated from Princeton University.

Bert Seidman

Bert Seidman has been the director of the Department of Occupational Safety, Health and Social Security of the AFL-CIO, Washington, D.C., since 1983. From 1962 to 1966, he was the AFL-CIO European economic representative stationed in Paris and then in Geneva. Before that, he served for 14 years as an economist in the research department of the AFL and the AFL-CIO. In 1966, he became director of the AFL-CIO Social Security Department. He was a member of the U.S. labor delegation to the annual conference of the International Labor Organization (ILO) from 1958 to 1976 and, from 1972 to 1975, was a member of the ILO governing body. In 1973 and 1974, he was the U.S. worker delegate to the ILO conference. He has served on numerous committees, including the Federal Advisory Council on Employment Security, the Advisory Council on Health Insurance for the Disabled, the Task Force on Medicaid and Related Programs, the Advisory Council on Social Security, the Federal Hospital Council, the Health

Insurance Benefits Advisory Council, the Blue Cross Advisory Committee, and the 1981 White House Conference on Aging (the Advisory Committee and chairman of the Technical Committee on Retirement Income). At present, he is a member of the HMO Industry Council, the Brookings Institution Advisory Panel on Long-Term Care, and the National Advisory Committee to The Robert Wood Johnson Foundation on Community Programs for Affordable Health Care. He is on the board of the National Council of Senior Citizens and the National Council on Aging, and is a vice president of the National Consumers League.

Jack K. Shelton

Jack K. Shelton is manager of the Employee Insurance Department of the Ford Motor Company, which he joined in 1956. He is responsible for the financial control and analysis of nearly all employee benefit plans. In this capacity, he participates in union negotiations, relations with insurance carriers, and financial control of company-administered plans. He also reviews changes in wage and benefit programs for foreign subsidiaries. Mr. Shelton is actively involved in a number of local and national health care organizations, serving as a director of the National Fund for Medical Education, a director of Blue Cross and Blue Shield of Michigan, and a member of the Statewide Health Coordinating Council of Michigan. In 1985, he was a member of an Office of Technology Assessment Advisory Panel on Alternative Physician Payments for Medicare and chairman of the Employer Prospective Payment Advisory Commission for the Washington Business Group on Health. He is past chairman of the National Industry Council on HMO Development, the Michigan Health Economics Coalition, the Michigan Hospital Capacity Reduction Corporation, and the Health Alliance Plan (Michigan's largest HMO). Mr. Shelton received B.S. and M.S. degrees in industrial psychology from Oklahoma State University.

J. B. Silvers

J. B. Silvers is co-director of the Health Systems Management Center of Case Western Reserve University. He is also the William M. and Elizabeth C. Treuhaft Professor at the university's Weatherhead School of Management and the School of Medicine. Before joining Case Western Reserve, Dr. Silvers was a faculty member at Indiana, Harvard, and Stanford. Dr. Silvers currently serves the U.S. Department of Health and Human Services as a member of the Secretary's Commission on Nursing and as a member of the Health Care Technology Study Section of the National Center for Health Services Research. During 1983–84, he chaired the Governor's Commission on Ohio Health Care Costs. He has written extensively in the field of health care and hospital finance. He also serves as a consultant or adviser to numerous private organizations. Dr. Silvers received a Ph.D. from Stanford University and M.S. and B.S. degrees from Purdue University.

Bruce C. Vladeck

Bruce C. Vladeck is president of the United Hospital Fund of New York. Immediately before joining that organization, Dr. Vladeck was assistant vice president of The Robert Wood Johnson Foundation. From 1979 to 1982, he was assistant commissioner for health planning and resources development of the New Jersey State Department of Health. In that position, he was director of the State Health Planning and Development Agency, where he oversaw the implementation of New Jersey's all payer, DRG-based hospital prospective payment system. Dr. Vladeck taught for four and one-half years at Columbia University, and has served on the adjunct faculty of Rutgers, Princeton, the College of Medicine and Dentistry of New Jersey, and New York University. He is the author of *Unloving Care: The Nursing Home Tragedy*, and has written numerous articles and book chapters on health policy, health care finance, and health politics. He is a member of the New York State Council of Health Care Financing, the Institute of Medicine of the National Academy of Sciences, and various national advisory committees of The Robert Wood Johnson Foundation. Dr. Vladeck, who is a Fellow of the New York Academy of Medicine, also serves on the board of the Association for Health Services Research. He received a bachelor's degree in government from Harvard College and M.A. and Ph.D. degrees in political science from the University of Michigan.

Sankey V. Williams

Sankey V. Williams is director of The Robert Wood Johnson Foundation Clinical Scholars Program at the University of Pennsylvania. He also

serves as associate professor of medicine at the Hospital of the University of Pennsylvania and associate professor of health care systems at the university's Wharton School. He serves as associate director for medical affairs in the Wharton School's Leonard Davis Institute of Health Economics. He is an associate in the Clinical Epidemiology Unit of the university and previously served as associate director for clinical research at the University of Pennsylvania's Center for the Study of Aging. He was a Henry J. Kaiser Family Foundation Faculty Scholar in general internal medicine from 1981 to 1986. Dr. Williams currently serves on the editorial boards of *Medical Decision Making* and the *Journal of General Internal Medicine*. He also serves as consultant to the *Annals of Internal Medicine* for the series, "Diagnostic Decisions." Dr. Williams, who is certified by the American Board of Internal Medicine, has published and lectured widely in many fields, including medical decision making, physician behavior, and hospital case-mix management. Dr. Williams received a B.A. from Princeton University and an M.D. from Harvard Medical School. He completed his internship and residency in medicine at the Hospital of the University of Pennsylvania and was a Robert Wood Johnson Foundation Clinical Scholar at the university.

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